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NEWS IN BRIEF

Bar on GEC strikers

A HIGH COURT injunction bars GEC's striking operators from all the company's Coventry works, as the operators' pay dispute remains unresolved. GEC took legal action after operators staged a sit-in at the engineers' section of the Stoke, Coventry plant on May 23 and later occupied the computer room. The strike arose on February 24, because the operators are unhappy with the pay rises offered by the company and it became an official ASTMS matter on March 20.

London is new HQ

THE US-BASED manufacturer of IBM 3350 replacement disc drives, Storage Technology, has, as expected, opened a London office (CW February 18) which becomes the firm's European headquarters. Storage Technology also manufactures main store extensions for IBM 370 computers.

Edutronics switch

The assets of Edutronics Systems International, the US computer training materials manufacturer, have been acquired by McGraw-Hill, the publishers, for an undisclosed amount.

Thirtieth Argus

A MONITORING system based on a 12K word Ferranti Argus 7005 processor will evaluate the performance of a 500 Megawatt coal fired boiler and turbine unit at Fiddler's Ferry Power Station in the CEB's North Western Region. Worth over £200,000, this brings the total of Argus systems in power generation applications to 30.

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We hope our potential customers who were sceptical of our claims for our CORAL 66 package have overcome their disbelief. We welcome competition and criticism. The user will decide on the good points — we are happy to try to eliminate any irritations. If the RSRE run-time benchmarks are anything to go by, the HPA CORAL 66 compiler, on a PDP-11/70 with cache memory (980ns) under RSX-11M (Version 3), has produced aggregate timings of 48.38 seconds. Of course, users run their own benchmarks — there is far more to our compilers than mere speed and real-time programming. A compatible compiler is available on Computer Automation's LSI-2 and another soon to be released for the NM4 series — cross-compilers also available!

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COMPUTER WEEKLY

Birthday honours go to Dorey and Ellis



EXPORT achievements by the computer industry were recognised in the Queen's Birthday Honours list by awards to Peter Dorey of Ferranti and Peter Ellis of ICL.

Dorey, who is appointed a CBE, is a director of Ferranti and managing director of Ferranti Computer Systems Ltd, a recently created grouping taking in all the company's computer and microprocessor activities. He was responsible for building up Ferranti's business in the military field and has also been closely involved in the joint venture with the Brazilian government and industry to build Argus computers in Brazil.

Peter Ellis, who is awarded the OBE, is ICL's director of worldwide marketing. He joined Powers-Samas in 1951 and

when that company merged with British Tabulator he formed the first programming group. He played a leading part in ICL in 1900 product planning and when ICL was formed in 1968 he became director of accounts, planning and commercial areas. He took over his marketing role in 1970.

Other honours include knightships for Robert Telford, managing director of GEC-Marconi Electronics, and for Amos Chilver, vice-chancellor of Cranfield Institute of Technology.

The MBE has gone to J. G. Walker, a personnel officer at IBM's Greenock plant, and the BEM has been awarded to H. D. Steven, a technical officer with the maintenance division in Edinburgh telephone area.



Workers to be laid off by NCR at Dundee

A SWITCH in manufacturing policy by NCR will result in a considerable number of redundancies at the company's Dundee plant. Microprocessor boards for the 8100 family of small computers were to have been produced at Dundee both for the Augsburg plant in Germany, where the 8100 is built, and as a second source supply in the Common Market.

General manager at Dundee, Dick MacDonald, said the change of plan had become necessary because of "further technological simplification" of the microprocessor and 8100 manufacturing. The end product would now have less labour content and "it would thus be uneconomic to involve two European centres."

He said it was not possible to say at present how many redundancies would be involved because it would likely that some people would need to be transferred to other products that were expanding.

Dundee is the sole supplier in Europe of the 8100 series and the 8400 and 8500 Criterion systems. There is also the 24-hour service banking terminal, the 1780, which was entirely designed and developed at Dundee and has already attracted the attention of US and Canadian banking organisations.

The 1780 has passed all its reliability tests and preproduction models will be undergoing final checks next month.

'Computers could halt government'

THE vulnerability of large government computer centres to disruption which could bring the business of various departments to a halt, is highlighted in a report prepared by senior civil servants. Strike action is among the dangers mentioned by the report.

In particular, there is much heated discussion at present over whether to computerise the collection of income tax, and this report may well swing that argument against computers.

Commenting on the report, the Civil and Public Servants Association said that any computer system could be replaced by manual back-up if necessary and strikes by computer staff

Logica gets extension to Saudi work

MANAGEMENT and systems consultants Logica, together with consulting engineers Frederic R. Harris, have gained a second year extension worth £1.5 million of a contract for cost estimating and budget evaluation from the Royal Commission for Jubail and Yanbu in Saudi Arabia.

The contract covers provision of services and development of systems, including evaluation of the benefits of using computers to replace the present manual systems.

Said to be the world's largest construction project, the two new cities of Jubail and Yanbu are planned to have eventual populations of 150,000 each and the development programme involves about 200 different kinds of construction project.

He pointed out that wastage of government computer staff at present was very high, because of the difference in pay levels between the public and private sectors. Some installations were losing 40% of their programming staff a year.

US range additions

A SMALL business system is to be marketed by National Semiconductor in the US, as an addition to its operations in IBM-compatible computers and add-on memories.

would act mainly as an irritant to the government.

The Society of Civil and Public Servants, the next largest Civil Service union said that they were taking a militant policy on pay, and that they were committed to taking industrial action if the Government did not establish a pay research system. Computers would certainly be one of the areas involved, a spokesman said.

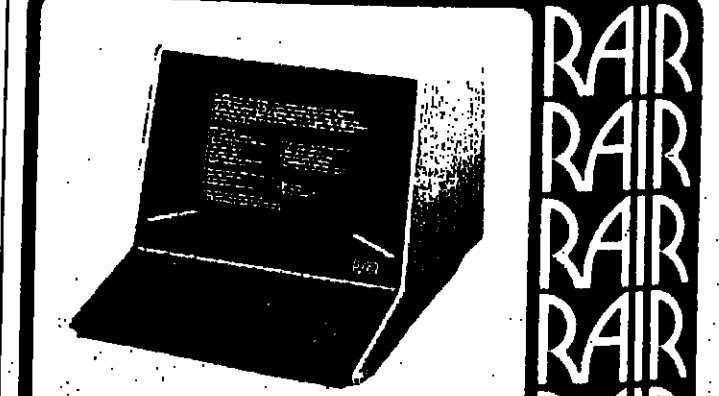
ASTMS highlights its strength in industry

DISCUSSION with NCR on grading and pay for engineers and a statement of its dominance, in terms of membership, within ICL are two of the highlights of ASTMS activity in the computer industry this week.

A joint meeting is to be held between NCR and ASTMS tomorrow (Friday) at NCR's London head office to discuss a proposed new job grading plan and salary scales for 800 field engineers.

Talks held last month broke down and the union negotiating team recommended that the engineers take industrial action (CW, June 1), but this has not yet been voted on. A second meeting will be held tomorrow afternoon at which ASTMS representatives in NCR will discuss the situation further.

On another front, Tim Webb, national officer for ASTMS, has asked that a meeting with the



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Briefing Warning on Cobol 80 costs

USERS may be faced with enormous Cobol conversion costs if the expected new Cobol 80 standards emerge from Codasyl in a few years, according to Paul Oliver, of the US Navy's Cobol compiler testing service. Speaking at the NCC at Anaheim, he said the new standards might be as different from Cobol 74 as the standard was from Cobol 68. He suggested costs of possibly \$1 a line of code for conversion.

Captain Grass Hopper, who pioneered the development of compiler validation procedures, believes that this work must now be taken up by a wider user community insisting upon standardisation.

See Software File, page 7.

Microwriter oash

FUNDING in the region of £200,000 is to be provided by Hamro Life Assurance for the Microwriter, the pocket word processor invented by Cy End field (CW, May 11). A team to manage production and marketing of the Microwriter is being set up and exploratory talks have started, in particular with consultancy Logica.

Prestel for Dutoh

THE Dutch PTT has followed the West German Bundespost in buying a version of the Post Office's Prestel videodata software and a 4080 minicomputer from BBC. The sale involves a version of the pilot trial software and the PTT has taken an option to buy the public service software later.

AN architect working for Trent Regional Health Authority has won an award of £25 for coming up with the idea of a computerised register of architectural drawings that has saved the authority £3,000 in one year.

Software for the system was written by the Authority's computer department and has been applied to the construction of new district general hospitals at Chesterfield and Ormsby.

Testing time

FIRST samples of a Motorola 6800 microprocessor processed at the company's East Kilbride plant are now being tested. These are the first to be produced by the company outside Scotland, and will probably go on to become products when an automatic programme for the 6800 plant is completed.

Number 605 Thursday, June 15, 1978 Price 18p

MALCOLM PELTU AND TIM PALMER REPORT FROM THE NCC IN ANAHEIM

First electronic paper this year

THE world's first electronic newspaper, transmitting information digitally to its readers, could be in operation by the end of the year in the San Francisco Bay area, and the system, called Digicast, could be of interest to the United Nations for assisting in technological understanding and decision making.

The initial target of Digicast is the home computer user but it also offers many of the applications now being provided by information services such as viewdata.

Personal computing pioneer Jim Warren Jr, who is developing Digicast, said that the aim was to help people to cope with the vast amount of information being produced by using computers, to do the initial scanning of the "newspaper."

Digicast would be transmitted using FM radio frequencies. Warren, founder of the West Coast Personal Fair, and editor of Dr Dobbs' Journal of Computer Calisthenics and Orthodontia, said that a terminal for use with the system would cost about \$100. The Digicast operation would be run on the lines of a newspaper, but the information collected would be transmitted virtually unedited to its "readers."

One "page" of text would be transmitted over the system every two minutes with the information being continually updated. A home computer would be used to "listen in" to the broadcast and select information according to predetermined criteria, for example,

Personal computers add spice

DESPITE a major challenge from semiconductor manufacturers and the mass-market gnawings of the personal computer market, the traditional computer industry put on its most prosperous face last week for the US National Computing Conference at Anaheim, California. The show has expanded to an unwieldy state and there were four-hour registration queues each day outside the conference centre. At the end of the four days nearly 60,000 people had attended the event.

The main excitement and tang of new ideas came from the growing "fringe" event, the Personal Computing Festival, held this year in the Disneyland Hotel. And the most significant conference messages came from the "outsiders," the semiconductor manufacturers which increasingly are encroaching upon traditional computer services.

It was fitting that two pioneers of semiconductor, Dr Gordon Moore and Robert Noyce, of Intel, won the 15th Harry Goode Award which honours the individuals who have made extraordinary contributions to developments in information processing. It is sponsored by the NCC organisers, the American Federation of Information Processing Societies.

A contents addressable file store costing about \$500, for attachment to a micro system; a high quality full colour display for \$1,395; a micro-based Monopoly game; and a micro-mouse maze competition were typical of the blend of almost unbelievable new commercial products and fun ideas at the personal computer show.

The potential of the booming new market appears to be unlimited, but a warning note was struck by Pertec chairman Ryal Poppa, who said there were bound to be some major commercial setbacks as the hobbyist and personal market grew rapidly towards maturity.

On the wider industry position, a key conference session was devoted to the impact of semiconductor on computer architecture.

Speakers from the solid state

Scots to spend £6m on 2900s

ORDERS worth over £6 million for ICL 2900 systems — to replace older ICL equipment and to meet increased workloads — have been made by six Scottish regional councils.

Lothian Regional Council is to replace its System 4 with an ICL 2970 and a 2960, and one of the major applications will be a system for expenditure control.

Tayside Regional Council intends to replace its ICL 1902S and 1902T systems with an ICL 2060 and develop its police information system which holds

GIS Cobol adopted for R2E Miorals

FRENCH microcomputer pioneer R2E, in which CII-Honeywell Bull has now taken a 60% share, is to adopt the GIS Cobol compiler from UK systems house Micro Focus, for its Mioral range which is based on Intel 8080 and Zilog Z80 micros. It was announced at the NCC that in the first year the contract will be worth £25,000.

GIS Cobol has already been adopted by Tandberg of Norway for its intelligent desk-top terminals and by ICL for the 1500 series.

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Speakers from the solid state

Honeywell stake in Mark III

AFTER selling the General Electric Mark III time sharing services for several years in Europe and Australia, Honeywell is to take a 16% share in a new company that will sell Mark III services all over the world. The other 84% of the company will be owned by General Electric under an agreement in principle reached by the two firms.

The deal means that Honeywell will benefit from the substantial Mark III business in US. In Europe the new company will take over selling Mark III from the Network Information Services division of Honeywell in the UK.

The new company formally starts operations on November 1.

The final council, Grampian,

Design Brief

Micro Logic is Data Logic's microprocessor division. They apply microtechnology to real situations. They advise, design and assemble. Almost certainly, if anything can be done with micros they can do it.

One of Micro Logic's clients had a very special requirement. One hundred portable systems, each to contain a processor and store, a floppy disc drive, a visual display unit with keyboard, and a printer. Why so special? Because the application called for each unit to weigh less than 20 lbs and to fit into a container no bigger than a standard briefcase.

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GILB'S MYTHODOLOGY

Verification dead—almost

I KNOW some of you will find this incredible, but there are still computer installations which use repetitive keying of input, and a second look at the source document, as a way of checking the validity of input data capture.

This technique, which I will call "verification" here, might even be unknown to the many readers who have been born directly into an online interactive environment. But such techniques continue to flourish.

Not too many years ago I could find a typical commercial DP installation where at least 30% of the keying devices were specialist verifiers. These days the amount of verification being done is hidden because of the multipurpose nature of the encoding machines.

But I regularly come across recently planned commercial and even technical engineering systems where repetitive verification is being used as a means of checking the quality of the original keying. The continued use of repetitive verification in new designs is, in my view, a sign of lack of imagination or of training of the designer.

One of the points against verification is its high cost. It requires an extra person-process, not to mention

machine, and people are becoming expensive. In some countries, this might create employment, and be desirable, but in others it simply results in increased import of cheap foreign labour, or the export of the keypunching jobs.

It is my experience that we are not unwilling to improve this process, but I have met system designers who claim that there is no better way of doing it. This has always turned out to be untrue, when they have had the opportunity to evaluate techniques of which they were not aware.

There is no one superior technique to replace verification. That is precisely the advantage of verification. It is highly generalised. One need not know much about the application, but merely repeat the keypunching instructions. The only justification I have found is where an immediate thorough check of keying is required for an application which is entirely new and which is not worth any long term investment in analysis and design of other checking procedures.

Here is my checklist of the techniques which in one combination or another, can replace repetitive verification.

1 Get the source to provide machine readable input. For example the bank could

supply a tape of transactions instead of a list.

2 Let the data source decide the amount. Years ago in Datamation an American company reported letting their suppliers fill out the amount the company owed, on a blank signed cheque. The bank then got the keypunching job, and the suppliers got the "correct" amount. There were maximum-amount, and responsible-supplier controls, of course, and the system worked out very well.

3 Automatically self-adjusting reasonableness checks. Check the quantity in relation to a programmed note in the product record of the maximum amount validly ordered. Or the largest amount posted to an account. This may require extra fields in database records, but existing fields, such as year-to-date or last-month quantities may give interesting reasonableness tests.

4 Use a default quantity. In one application we found that 90% of all orders were for quantity one.

5 Logical deduction of the field. In one charter aircraft application there were eight six-digit dates on a form. All were currently being keyed, written and verified. Most dates were

the same, or related to travel distance, start time, air speed and crew resting rules. Better to let the computer work out most of them, and let humans intervene for exceptional circumstances.

6 Don't verify at all, take a chance. What is the maximum error? What is the cost of the verification? The answers may lead you to drop verification.

7 Use the side-by-side repetition method, for example 123 123. This does not cost as much as verification. It can be done by exception (for example, for the three per cent of orders with two digits or larger order quantities), and the program can read both attempts, check that a second attempt has been made, prompt the operator when it has not, give alternatives when there is a difference, and even select a probable alternative.

8 Distinct repetition method. This is the same as the ordinary repetition on the same input record, but some of the problems of input parroting are solved.

9 Check sums. The old tried accounting method. Here for completeness sake.

10 Use grouping concepts to simplify numbers and to introduce checking redundancy at no extra cost. For example, PK meaning whatever quantity is in a package of that item identification. DY meaning however many hours of work in a normal working day of that date for that class of worker.

11 Use "Check words" which are quantities. For example, item and price, or person and birthdate. This concept acts as a powerful double check on not just the quantifier, but also the identifier.

12 Let the receiver verify. In one case where 100,000 insurance client names and addresses were converted to gibberish, we let the post office try to deliver bills, rather than checking a million policy records ourselves.

13 Pattern checking. Quantity patterns which are normal are recorded (automatically) for each item, account, etc. The input is checked against these.

GILB'S HYPOTHESIS: Repetitive verification is obsolete, but we don't all know it.



Space package from Spa

A GENERAL accounting package, called Space, is available from IBM System 32, System 34 and System 36 computers from Spa Software Services. Written in RPG 2, the package handles order entry, invoicing, sales ledger, sales analysis, stock control, sales forecasting, and commission reporting. Spa Software Services is based at Thorn Way, Long Thorns, Rugby. Tel: 0628-81 2327.

NEW structural mechanics programs are included in the revised catalogue of finite element computer programs produced by Linköping Institute of Technology, Sweden. The catalogue describes program characteristics and source for about 40 programs.

Updated at the same time is the similar catalogue of pre- and postprocessor programs.

FOLLOWING the takeover of Atkins Computing Services by On-line Systems Inc (CW August 4, 1977), the company has changed its name to Atkins On-line Ltd and plans a major expansion of computing resources. In addition to a satellite link to On-line's Pittsburgh complex, two DECsystem 10s have been ordered for the Epsom bureau, complementing the existing Xerox Sigma 8 service.

The new equipment will be used in part to make available the successful US software packages, Oscar for project management, and Oliver, a database management system (CW, January 29, 1976).

SOFTWARE FILE -2

EDOS/VS version launched

A VS version of the EDOS operating system is to be released shortly in the UK by The Computer Software Company. Based on release 34 of IBM's DOS/VS, the system will be available to both System/360 and System/370 users.

EDOS/VS follows the pattern established by EDOS in providing both performance improvements and superior operational facilities over the standard IBM software. Incorporating all the enhancements of EDOS, it is fully compatible with existing DOS/VS and EDOS programs and JCL.

One factor contributing to efficient memory management in EDOS/VS is that variable partitions are supported, whose size is established at each job step. Up to 12 partitions can be run, with automatic partition balancing.

Another throughput feature is real storage system support. Typical of the architectural tailoring in EDOS/VS, this

enhancement is based on the observation that, even under the VIRTUAL-REAL option, DOS/VS continues to invoke channel program translation as if it were paging.

According to the company, by-passing these routines can save up to 20% of the supervisor overhead when all partitions are being executed in real mode.

Another major bottleneck, multiple outstanding reads to the system console, is eliminated with a facility permitting asynchronous operator communication. Support is also provided for use of a 3270 as the system console.

Other features of the software include extended procedure library support and automatic IPL procedures, allowing standard system IPL statements to be catalogued.

On a 360, one of the major attractions of the system is support for program products and devices otherwise only available on a

370. EDOS/VS-360 differs from EDOS/VS-370 only in the removal of paging code.

Installations with both 360 and 370 equipment can thus use EDOS/VS as a single compatible operating system, enabling jobs to be run on either machine. The system in addition supports the company's Gemini software, which enables CPUs to be coupled.

EDOS/VS also supports the full range of existing EDOS options which include disc space management and tape management systems; the PDMS program development and maintenance system; Extended RJE; the Datacom/DB database management system; and a data entry control system, DECS.

Previously offering support based on the US, The Computer Software Co has now established a permanent address in the UK. The company is based at St Alphage House, 2 Fore Street, London EC2. Tel: 638-2144.

Enhancements to Total

PORTABILITY, performance, and support for online working are the main areas enhanced by Cincom in the latest IBM 370 release of Total, numbered 8.0.

Released at the same time was an interactive query facility, Task, the first of a projected range of end-user oriented software.

Most of the enhancements in the new Total version relate to the control of tasks and the en-

vironment, and file control, with only a slight effect on data manipulation.

The result of a major internal re-design, the chief benefits for users are a substantial improvement in throughput and response time, and a greatly superior recovery mechanism.

Fully re-entrant, Total 8.0 supports multi-task, multi-threading operation within the

Two more companies switch support to Pascal

FURTHER confirmation of the emergence of Pascal as a significant language and a relief from Grace Hopper for users to insist on better software standardisation were software highlights at the National Computing Conference at Anaheim.

Texas Instruments has introduced a Pascal system for its 990/9900 minis and micros and the new Basic Timesharing BTT 5000 large scale system also has Pascal as an intrinsic part of its software capability.

Bernie List, US manager of Texas Instruments MOS operations, said that he believed Pascal promised to improve programmers and machine efficiency significantly and could lead to reduced software development cycles. TI is now using Pascal for its own software development.

CA, best known for CA-Sort and CA-Earl, originally acquired its VM products through the takeover of the software products division of Standard Data Corp (CW, July 8, 1976).

The occasion was also the 10th anniversary of Computer Associates' UK arm, formed at the takeover of Carus (CW, March 10, 1977).

List was talking during the conference session in which Bob Heikes, of Motorola, said that software could be the major barrier to increased growth among semiconductor manufacturers (see page 8).

A floppy disc version of TI Pascal costs \$500 and a disc version \$700 and a UK spokesman confirmed that the software would be launched here in the next few weeks, though prices had not yet been determined.

Captain Hopper reiterated her plea for users to insist on the implementation of standards in the course of a session on the current state of Cobol (page 1).

"It is high time consumers took a more active part in supporting good programming standards," she said. "Until that happens there will never be a development of full and coherent standards."

DBMS itself, permitting maximum I/O overlap, blocked logging, and a significant reduction in CPU cycles. Other factors leading to improved performance are execution-time element binding, and code-directed and data-directed access.

Previously restricted to BDAM, the new system for the first time offers the option of VSAM support. Including support for the key sequence version, the option facilitates the implementation of inverted file structures.

Other features of the new release include task-level recovery and a high degree of portability across operating systems; system components are now identical for DOS and OS.

Said to be similar to Total-10, available with the Harris minicomputer implementation, Task provides three basic functions: query, procedure cataloguing, and directory maintenance. An interpretive processor, it is operated from a 3270 or 3270-compatible terminal.

On signing on and supplying a password, the user is presented with a menu of the database elements available to him. Those selected as germane to the query will appear on the final display, together with any derived fields such as averages or totals.

Task then asks the user to specify the selection criteria, and any derived fields, using the system language. When executed, the routines present results on the screen one page at

a time, with the option to continue or abandon the retrieval at the end of each display.

The directory maintenance function allows the system administrator to specify which database items can be accessed by each user. Data items on each menu transcend file boundaries and can be named differently for each user. A central directory relates these aliases to the Total DBGEN name for the element.

Inquire database system installed in UK bureau

THE Inquire database management system has been made available at a UK bureau.

The IBM-based UK arm of Control Data Corporation Data Services Division has installed the DBMS software on its 380/165 running under MVT. Now that field trials have been successfully completed the bureau expects several clients will soon be using Inquire.

Inquire originates from Information Systems of Virginia, but is marketed in the UK by London consultancy Software Implementation. Despite having had the agency for two years, this is the first site supplied by Software Implementation.

The system has several unusual features, including an English-like query language and facilities for text processing.

IBM applications system for 5110 machines

FIELD-DEVELOPED applications-oriented software is to be made available by IBM for the 5110 desk-top computer. The package, Business Report/Application Development System (Brads), is described as a database entry and maintenance system designed to help in the development of common commercial applications.

Brads provides facilities both for reporting and data manipulation. Driven interactively, the system guides the user through complete command entry by prompting for the parameter specifications required by each command.

The built-in report program caters both for automatic and user-specified formatting, reflecting a general concern in both the casual and the more experienced user.

Features of the report generator include the ability to handle multiple input and output files, and to select on multiple user-defined criteria, such as intermediate results. Files can be accessed directly, via record number or key, as well as sequentially or indexed-sequentially.

In addition to the report program and file access methods, the software offers general purpose functions for access to the database: an inquiry facility; and facilities for data entry and update.

Written in Basic, Brads is scheduled for release at the end of September. It will rent for £34 per month.

Offered in the US with a wide range of standard business packages, the 5110 was released in the UK without the benefit of any IBM applications software (CW, January 26). However, a number of software houses have found the system very attractive and those already offering packages include CAP, CRI-Abacus, and Eurologic Software.

Among 85 Inquire users worldwide are two UK users supplied before the agency agreement with Software Implementation.

A typical starting point here might be the observation that much effort is wasted on printing legible characters on coding forms, time that could be spent more productively if alternative means of input were available.

Next week Programmer Notes will examine de Bono's other techniques, but in the meantime, readers who have experimented with Lateral Thinking are invited to write to Programmer Notes to air their views. Please include a day-time phone number if possible.

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SOFTWARE FILE-1

Big growth in VM users is predicted

A LEADING specialist in IBM's VM/370 operating system has predicted a dramatic growth in the number of active users over the next two years.

Jim Byrne, chairman of the VM/370 user group in the UK and Elre till 1977, said the number of VM users in the UK was expected to grow from 80 to 300 in the next two years.

In the US, VM users would grow from 400 to 2,000 by the end of this year, he said, representing at least 20% of all US installations.

"A major reason for this," Byrne explained, "is the availability of the new level of IBM computers with much improved price/performance ratios, and the emphasis that IBM itself is placing on VM."

Byrne, now technical support manager, VM products, for Computer Associates, was speaking at the company's formal launch of the products in the UK.

Chief among CA's offerings for VM users is IDOS/VS, which provides conversational, time sharing facilities for DOS/VS users. Based on extensions to CMS, the software allows the DOS and CMS environments to exist concurrently in the same machine.

IDOS/VS makes available interactive facilities to develop, execute, and debug DOS/VS programs and fully supports all DOS/VS utilities, access methods, and compilers. One important application cited by the company is as an aid in the transition from DOS to VSI.

system are tools for interactive symbolic debugging of Cobol, Fortran, and Assembler, and for test data generation. These packages, Symbug and Symdata, can also be run under CMS.

Other CA software for VM/GMS includes CA-ISAM, a simulation of OS ISAM under CMS, and CA-VSORT, an implementation of OS Sort for

Seicon system for financial planning

THE latest bureau to introduce an interactive financial planning system for end-users is Seicon Computer Services. The company has installed Finar, a financial analysis and reporting system developed by Aristos Business Systems (CW, August 11, 1977).

Originally implemented on DEC System 10 and PDP-11 equipment, Finar has been converted by Seicon for use on the Univac 1100 series. This version will be sold and supported by Seicon for in-house machines in addition to being available on the Milton Keynes bureau service.

Claimed to be accessible to any user who can operate a desk calculator, Finar covers requirements such as the evaluation of alternative investment plans, budget-variance analysis, sensitivity analysis, and profit and loss statements.

CA, best known for CA-Sort and CA-Earl, originally acquired its VM products through the takeover of the software products division of Standard Data Corp (CW, July 8, 1976).

The occasion was also the 10th anniversary of Computer Associates' UK arm, formed at the takeover of Carus (CW, March 10, 1977).

Interface Finar with a number of existing packages to create an integrated management tool. Software identified includes packages for forecasting, project control and evaluation.

Finar has already been installed by two DEC bureau sites: Computer Services, of London and Datacall, of Leeds.

Coral compiler

A RESIDENT Coral 86 compiler for the DEC PDP-11 has been produced by Systems Designers. Based on the company's universal front-end, the initial version is intended for 11/34 and 11/45 equipment under RSX-11M. Systems Designers claim support and complete reliability, based on the standard, as the major advantages over the compilers available. The software is priced at £4,500.

PROGRAMMER NOTES

De Bono's views on Lateral Thinking

There is an enormous conceptual poverty within the DP world. And, according to Edward de Bono, it represents a far greater deficiency than within any other occupation.

De Bono, the father of Lateral Thinking, was expounding his views at a three-day seminar organised by Intofech. Object of the sessions was to stimulate DP

people into extending their normal techniques of problem solving.

According to de Bono, part of the difficulty for DP people is that there is usually at least one obvious solution to a problem—probably of a conventional processing type.

Lateral Thinking should be used as a stepping stone to new ideas, to kick away from well-worn channels of thought. A means of introducing external influences, it can sometimes bring out important insights, leading to new techniques.

De Bono does not advocate expending too much time and effort on Lateral Thinking approaches. He recommends its regular application, but in moderate periods of perhaps 10 minutes. Thereafter if LT has not suggested any new possibilities, conventional methods should be adopted.

Applying the techniques of Lateral Thinking will never be easy, de Bono says, because the idea is to break established habits. DP teaches its disciples to tackle a problem at the technical grass roots, whereas LT encourages a broader view.

When an impasse has been reached, half the battle is won when the programmer or analyst admits the existence of the blockage, says de Bono.

One tactic that can then be adopted is random juxtaposition: take a word, object, or analogy at random and think of it in conjunction with the problem. For example, what relationship could there be between a paper-tape and traffic lights? Perhaps a shading of green through amber to red could be used to indicate the amount of tape left on a reel.

Another technique is to start at the end of a problem, or to

tackle a side issue first, before working back to the mainline.

De Bono also emphasises the significance of problem finding. This involves examining a topic from several points of view, looking for potential enhancements. The aim here is to identify benefits, without regard to the practical mechanisms necessary to achieve them.

A typical starting point here might be the observation that much effort is wasted on printing legible characters on coding forms, time that could be spent more productively if alternative means of input were available.

Next week Programmer Notes will examine de Bono's other techniques, but in the meantime, readers who have experimented with Lateral Thinking are invited to write to Programmer Notes to air their views. Please include a day-time phone number if possible.

PEOPLE

Sir Rex appointed to the IBM board



Sir Rex Richards

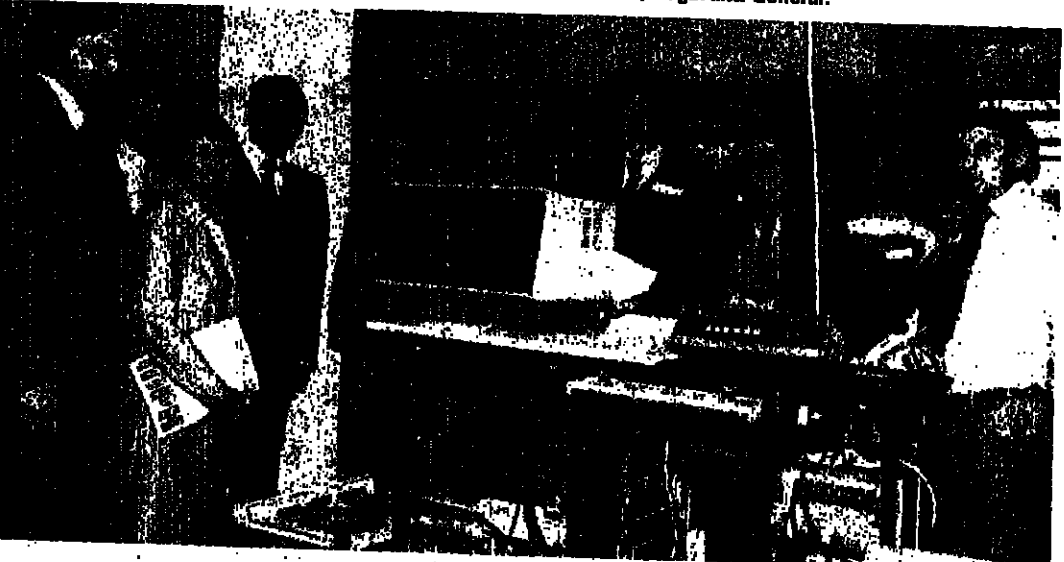
Irish BETA officials

OFFICIALS of the Irish Business Equipment Trade Association, IBETA, have been elected for 1978-79. They are:

President, John Campbell, Rank Xerox (I); vice-president, Aidan McKenna, Memory Business Machines; hon secretary, Ted Cantwell, Regent Typewriter (I); hon treasurer, Louis Johnson, Dublin Office Equipment Co; PRO, Brian Grant, IBM Ireland; administrator, Jack Simpson.

Derek Blackiston, previously central accounts senior territory manager with Rediffon Computers, has joined Infocore as a senior sales manager.

Dave Bennett (extreme right) explains the workings of a CMC Key Processing System to members of Cumac, the CMC Users' Association, at the Open Day held recently at CMC's headquarters in Hemel Hempstead, Herts. (Left to right) Alan Fitch, Haven Computer Services, Nigeria; Roy McKenzie, Johnson Matthey; Ann Meek and Cumac; Cumac secretary Bob Foster; and Mary Blacknell and Sally Stevens, Legat and General.



Motorbikes for charity

A 2,000-MILE Vintage Motor-cycle Tour of Great Britain organised by the Electrical and Electronics Industries Benevolent Association was successfully completed on June 4.

The five machines set out from Stroud in Gloucestershire on May 27, and their route took them to John o'Grants and Land's End before finishing in Dorset in Surrey.

The event was organised to raise funds for the EEIBA through sponsorships.

Janet Lennon joins F International as Western regional manager. She was previously with Leyland International where her responsibilities included management of systems programming and systems engineering support for all Leyland's European installations, evaluation and acquisition of all equipment, setting of standards for all aspects of a computer installation, defining job responsibilities and selection of senior staff, together with a functional responsibility for overseas companies.

Peter Evans joins Raytheon Corcoran Data Systems as general manager, from Burroughs, where he was manager of the applications program product centres in London and Paris.

Len Barons, a director of wire-makers Johnson and Nephew (Non-Ferrous) of Sheffield, has been appointed to the board of GMS Computing.

Keth Bishop has become a senior systems analyst with Logabax in Leeds. Previously he held a similar position with Adler.

Charles Nash, formerly Burroughs' promotion manager for the North of England and Scotland, has been appointed manager of the company's Preston branch.

Michael Toomey, formerly operations manager with UCC Datacom, has joined Memory Ireland as manager of the computer bureau payroll service division.



The South of the Thames heat of the Computastars 67 points, after a close contest with Perkin Elmer, who finished one point behind them. Hounslow Borough Council were again represented by the ladies' divisional winner, Janet Davidson. For the men's divisional winner, Tony Osborn of Robert Home Computers Services. It was a day for double celebrations. The winning ladies' team is seen above, left to right: Dinne Stephens, Janice Cook, Jackie Law, Olene Jones. The winning men from Hounslow were left to right: Gerry Brennan, Dave Royston, Brian Hughes, Steve Bristol, Gary Read.



John Clark has become president of Irel's data products group in the US, of which he was formerly executive vice-president, and has been elected a vice-president of the parent corporation. He assumes operating responsibility for the group from Richard Lusier, executive vice-president of Irel, whose responsibilities have been extended to include the air and equipment management and the data services groups, as well as the data products and financial services groups.

Among those reporting to Clark is the president of Irel International, Joseph Foster.

Derek Hoffmann, general manager of Kins Applied Technology, has been appointed to the board. Brian Betts has been promoted from marketing executive to marketing manager, and Gerry Hughes, lately of Foxboro-Voxell, has joined Kins as a marketing executive on computer systems.

Paul Martin joins Logabax as a senior sales executive for the North and London. Previously he was with Univac in a similar capacity.

Fred Fovargue, a systems analyst with Rediffon Computers' Midlands branch, has been promoted to senior systems analyst, central accounts North.

David Metcalfe has joined Datron Electronics as managing director, releasing Geoff Cannell to concentrate on his role as chairman. Metcalfe was previously UK instrument group manager with Hewlett-Packard.

David Saul, formerly an account manager in Honeywell's Government sector, joins Gamma Telecommunications Systems as sales manager for the Quk-Sell system. Paul Sherry, previously an account manager, commercial systems, with ICL, becomes applications manager at Gamma.

Ron Blain, formerly a sales engineer with IIT's ceramic capacitors division, has joined Buckman Instruments, also as a sales engineer.

June 19: Directional grammar. George Tappin. BCS Natural Language Translation Group. King's College, London WC2. 18.00.

June 19-20: Plug-compatible machines, conference. On-line. Regent Centre Hotel, London W1. 18.00.

June 20-21: Meeting. IBM Series 1 Users' Association. Royal Angus Hotel, Birmingham.

June 21-22: CAM 78, computer-aided manufacture conference. Department of Industry. National Engineering Lab, East Kilbride, Glasgow.

June 22-23: Pirat World Computing Services Industry Congress. ADAPSO/ECBA/ISIA. Princess Sofia Hotel, Barcelona.

June 23: Think plug-compatible. Data Processing Management Association. Central London Branch. CBI, Wells St, London W1. 18.00.

June 24: Michael Jackson design techniques, management. Dr. Marcus Bromberger. Dept. of Computer Science, University of Strathclyde, Glasgow. 6.30.

June 25: Details Mrs Christie, 041-582 4400, ext. 222.

June 27: Multi-microprocessor systems. Institution of Electrical Engineers. IEE, Savoy Place, London WC2R 0BU.

June 28: Social aspects of machine intelligence. Donald Michie. BCS 1978 Lecture Series. London School of Economics, London W1. 18.00.

June 29-30: National security and protection. Institution of Electrical Engineers. IEE, Savoy Place, London WC2R 0BU.

June 30: Operational group meeting. IBM Computer Users' Association. Grand Hotel, Bristol.

June 30-July 1: Computers and law. Society for Computer Law. Pollock Hall, University of Edinburgh. Details Mrs Christie, 022-582 4400.

First prize in the Computer Weekly/Dataskill essay competition, Computer-style 2000, was shared between Bryn Jones of Haverfordwest, whose essay was published last week, and David Butler

(pictured right), of Butler, Cox and Partners, of London EC1. Butler's essay, entitled "Britain in Turmoil 1975-2000", appears below.

Third prize in the competition was won by John

Garrett of CSI, London; and Garrett's essay, and those of the special award winners — John Finnie of Solihull, Paul Holden of Dublin, and A. Thornton of Derby — will be published soon.



By
DAVID
BUTLER

Britain in turmoil—with a ban on political parties and the Press censored

(This article is based upon excerpts from A Social History of Britain in the Twentieth Century published by the Oxford University Press in the year 2000. Copyright OUP, MM).

LOOKING back on the final quarter of the twentieth century, one is struck by two apparently contradictory phenomena. The first is the amazing rate of change — technical, social and economic which prevailed.

The second is the almost total lack of awareness of the significance of that change among the acknowledged leaders of society, including businessmen, politicians, economists and sociologists. They simply pretended that the computer and that the Information Society (or Infocore for short) would go away if it were ignored.

On reflection, however, these two trends were not as contradictory as they seem. For, if the political leaders of the 70s and 80s had understood Infocore, they would probably have strangled it at birth.

Few people paid much attention to even the most fundamental changes, such as patterns of employment. In 1952, for example, 43 per cent of the British workforce worked in manufacturing and only 38 per cent in services. Twenty years later manufacturing accounted for only 37 per cent while services had grown to 49 per cent. As manufacturing declined, office and administrative work expanded to absorb the surplus workers.

But by the late seventies, the advent of word processing, microprocessors, effective telecommunications systems and cheap terminals made it glaringly obvious that the office workers would also decline. Where would the surplus workforce go then, squeezed out of factories and offices by the progress of automation? A few lonely voices were raised in warning.

A consultancy firm in London devised the "Green Circle Plan", aimed at helping redundant workers back to the land as part-time telecommuters. The plan was widely derided. The opportunity to embrace Infocore in the UK without bloodshed and violent revolution was lost in the face of the impenetrable ignorance of the political leaders of the day.

The trend for the workers themselves to take the lead in closing down obsolete plants was also known as "Swan Hunterism".

The most obvious sign of industrial change in Britain was the rapid and drastic decline of manufacturing. Solidly resistant to change, wracked by internal dissension and apparently indifferent to the threat of its competitors, the UK manufacturing sector slid painfully downhill.

In the 1960s and 1970s manifestations of this decline included the nationalisation of virtually every strategic manufacturing industry — aircraft, motor cars, ships and so on. Unprofitable companies were subsidised (consuming virtually all the revenues from a nationalised industry) in a vain attempt to save employment.

By 1980, however, the favela of

unemployment had reached three million. A confidential Treasury forecast of five million unemployed by 1983 was leaked to the Press and the ugly and violent Work Riots broke out in 1981. In the course of three months over 1,000 lives were lost, including rioters, police and troops.

After the signing of the famous Birmingham Declaration by the representatives of the unemployed (now representing an important constituency of nearly 10 million people including families and dependents), the police, the armed forces and the trade unions, the inevitable consequences followed. Under the Emergency Powers Act (1982) a Government of National Reconstruction was appointed for an indefinite period. Political parties were banned and strict Press and media censorship imposed. With few exceptions the people of Britain heaved a sigh of relief and began work on the construction of Infocore, a task for which Britain was in fact uniquely well qualified.

It had been clear for some years that the British people had a clearer perception of their future than their leaders. As long ago as 1978, the Government of the day had bought an order for ships (at a loss) from the Polish Government, to try to preserve jobs in an obsolete shipyard. The workers themselves declined this subsidised make-work scheme, as if sensing its inherent economic folly. The trend for the workers themselves to take the lead in closing down obsolete plants thus became known as "Swan Hunterism".

But the decline in factory headcounts was a global trend. In countries where conventional engineering had persisted longer such as the US, Japan, Canada, France and Germany the decline of factory employment left behind huge pools of labour in the 1980s. By 1990, Britain had a big advantage because it had begun its shake-out more than a decade earlier. Factory automation exploded in the newly-rich countries of China, Brazil, Saudi Arabia, Iran and the United States of Africa, where the absence of a workforce dependent on conventional factory employment eased the introduction of totally automated factories.

Many of these factories are managed today by British engineers seated at consoles in Britain. The factories are sited close to their source of raw materials and to their markets, rather than to large pools of semi-skilled labour or management resources. Thus they save transport costs in an era of scarce mobile energy.

Meanwhile, in Britain, social attitudes had gone through 180 degrees. By 1985, it was clearly

understood that the insistence upon a full-time job was characteristic of an unenlightened, unreconstructed personality. Those who retained the old work-dependent attitudes of the 50s and 60s were contemptuously termed "jobbers". They lacked the inventiveness of the majority to use their leisure creatively and to enjoy part-time employment. They received the same tolerant disapprobation as alcoholics, drug addicts or those fanatical democrats who were unable to adjust to the new order.

By 1985, it was clearly understood that the insistence upon a full-time job was characteristic of an unenlightened, unreconstructed personality.

Gradually Infocore emerged, painstakingly built on the self-sacrifice of a generation trained for work that no longer existed. Many of today's largest industries did not exist a quarter-century ago. Global resource management was in its infancy: today British systems corporations look after the conservation of 70 per cent of the world's consumable resources. They monitor pollution in 12 of the world's 15 largest industrial nations.

In 1975, public entertainment consisted of TV, two-dimensional films and performances by live "stars". Today's holographic and polyphonic fantasy factories, shipping their spectacular multi-media products to every country in the world, were undreamt of. Britain supplies over 40 per cent of the fantasy output of the world.

While countries with a less developed regard for human life have specialised in manned space exploration, the UK has pioneered the development of telechelic lunar engineering. For most applications, the 1.2 second transmission interval between the tele-engineering centres on Earth and the surface of the moon is acceptable. Two-thirds of the Chinese and African colonial centres on the moon are British-built tele-constructs. The next step is the design of intelligent machines to exploit the mineral wealth of Mars.

Education programmes, pioneered in the 1980s by the Open University, are another British product which leads world markets, exploiting the fact that English is the world's most widely spoken language.

The remote development of software and the remote solution of management problems have exploded into huge mar-

kets, in the wake of the globe-trotting programmer and consultant. Perhaps Britain's most distinctive contribution to the emerging global Infocore has been the National Association of Experts, whose members encompass every branch of human knowledge. All over the world people dial in to the NAE's global video network, using the knowledge index to find the leading expert on ancient Chinese music, plasma physics, piscine research — or whatever.

The opinion of the human experts supplements the vast factual information in the NAE database. The NAE was Britain's fifth largest earner of overseas currency in 1985. It consumes no raw materials and runs on

Britain's most precious resource — brainpower.

All of these developments took time and effort to launch. But it is worth recalling that the

The city centres, previously dominated by offices and banks, have been converted to urban funfairs.

seeds of Britain's current prosperity were sown as long ago as 1979, when the world's first home computing service was launched in our country under the title of "Viewdata". The happy and prosperous people of

Britain in the year 2000 owe much to the great pioneers of that time.

The social impact of Infocore has been equally dramatic. At community work centres, workers log into a public terminal for their short daily shift, irrespective of who their employer may be. The old pattern of life where workers lived in suburbs and commuted to offices is fast disappearing. The majority of workers now live in the country, where the extended family (including aunts, uncles and grandparents) has been reconstructed. Juvenile delinquency and adult crime have been vastly reduced by adequate family care.

The family agriplan, with every smallholder rewarded for reaching self-sufficiency targets, has made Britain only a small-scale importer of food. The derided Green Circle Plan of the 70s came to fruition after all. The city centres, previously dominated by offices and banks, have been converted to urban funfairs.

Now that Britain is prosperous and stable again, the ruling National Reconstruction Party has announced that the re-introduction of democracy is imminent. Political parties will again be permitted. Before a decade is out, elections may even be held. It is to be hoped that Britain's progress towards the target of a democratic Infocore will not be disrupted by small bands of agitators and malcontents, financed by envious and less happy countries such as the People's Republic of America.

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PO £2m order for Marconi

THE Post Office has placed an order valued at about £2 million with Marconi Communications Systems of Chelmsford for the supply of 300 bps modems to be used in the Datal 200 service.

30 more terminals

THE Alliance Building Society's online branch investment and mortgage system is to be enhanced with the addition of 30 Transdata 313 printer terminals, worth £25,000. They will be used at branch offices in conjunction with VDUs linked to a Burroughs B8700 at the society's headquarters in Hove, Sussex.

Explosive

A BURROUGHS B1700 system has been installed by Nobel's Explosives, a subsidiary of Imperial Chemical Industries. The £70,000 system will be located at Nobel's Ardeer head office, and is to handle local processing and standard Hsp communication with an IBM 370 system.

Time sharing

ADDING to its IBM mainframe service, computer bureau Southwark Computer Services is offering an interactive time sharing service based on a Digital Equipment PDP-11/70 minicomputer operating under RSTS/E Level 08. The service is aimed at software houses requiring program development facilities and at relatively inexperienced computer users.

Tally range

NEW UK distributor for the Tally T1812 serial buffered printer, Computer Marketing, is now able to offer the full range of Tally line printers and terminals, largely on an ex-stock basis, with full contract maintenance.

Phillips installation

TO cope with the growing volume of invoices and other accounting routines, the R. H. Freight Group of Nottingham has installed a Phillips Data Systems P410 business system.

Free brochure

A FREE six-page brochure has been published, detailing the services offered by the Engineering Mechanics group of Atkins Research and Development of Epsom, Surrey.

SIGNIFICANT cost savings are expected to be made by BSC Stainless, part of the British Steel Corp, in the production of stainless steel at two of its plants which are now using a computer system developed jointly with Scicon Computer Services.

BSC Stainless has already invested over £90,000 in the project, known as Least Through

Cost Mix, and the system is based on Scicon's two Univac 1108 computers at its bureau installation in Milton Keynes.

LTCM is a simpler method of working out the most cost effective "recipes" for varying grades of steel. BSC staff at the two plants, Panteg in South Wales, and the new £50 million facility at Tinsley Park, Shef-

field, access the system via on-site VDUs linked to Scicon by Post Office lines. It is simple to use, as all the operator has to do is input the relevant parameters such as current value of materials, associated processing costs, and any practical restrictions. The least expensive option can then be produced in minutes.

Previously a manual system was employed in which "pencil and paper" work was sent to BSC's management services centre in Sheffield for processing on an Elliott 503 machine.

Development of the LTCM system took about a year, and the software is based on Scicon's mathematical programming system Sciconic, and is supported by a wide range of commercial software including MGG, Sciplo, and Special For

trans enhancements. It is likely that after another year or so of using the system BSC Stainless and Scicon will market their expertise in this specialised application to other interested parties in the steel industry.

Gamma ray scanner from Union Carbide

A BRAIN scanner employing nuclear medicine techniques, the Cleon 710, is being marketed by Union Carbide. The system measures gamma rays emitted by a radioactive substance injected into the tissues.

The scanner uses 12 detectors to construct a picture based on the distribution of the radioactive substance which penetrates various tissues at different rates showing up anomalies such as tumours or strokes.

Dr Peter Ell, consultant in nuclear medicine at the Middlesex Hospital Medical School, where the Cleon 710 has been undergoing clinical testing since March, says that the immediate advantage to the patient lies in the reduced dose of radioactivity which is about 100 millirads, roughly one-twentieth of the dose administered by one X-ray scan, and which does not have to be repeated for successive scans.

The Cleon 710, which costs about £175,000 in the UK, is based on a Data General Eclipse S/330 minicomputer. A whole-body imager will be announced soon.

The scanner manufactured and marketed by the UK company J & P Engineering of Reading (CW, April 20), which also uses the gamma ray emission tomography method, has changed its name to Tomogamma, and the company has paid a royalty of £8,100 to Aberdeen University following its first year of export.

The Tomogamma, which costs up to £85,000, was developed in collaboration with the University between 1974 and 1977. Clinical experience with the Aberdeen prototype now covers six years, and with the J & P model, three years.

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OP SPOT

It's 'carry on picketing' at GEC

THE GEC operator's strike is now in its fifth calendar month. Much has happened during the affair and the latest development has seen the operators banned from all the company's premises in Coventry under a High Court injunction.

The injunction came about after the operators had staged a sit-in at the contract engineers' section of the company's Stoke, Coventry site. That action caused 100 engineers to be sent home for the day.

John Hardie, who is a shift supervisor at GEC and the operators' union representative, takes up the story:

"We entered the area at about 8.00 pm — the engineers start at 8.30 pm — and we barricaded the doors."

According to Hardie the matter was reported on BRMB, Birmingham's local radio station, and it was later mentioned on the BBC's Midlands Today programme.

That afternoon a local solicitor, acting on behalf of GEC, served the operators with notice of the company's intention to apply for an injunction to bar them from its premises.

At about 6.00 pm the operators vacated the area, believing that such action would negate the company's attempt to get them barred. They were wrong.

Hardie explains: "It was all very unfortunate. We thought that no action would be taken as long as we were not actually occupying the area." Consequently they did not contest the issue and on Thursday, May 25 the company was duly awarded an interim High Court injunction.

The order had a clause stating that the operators could be arrested if they went against it.

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morning but, according to Hardie, they had already congregated to stage another sit-in. This time the computer room was their target.

Hardie describes the scene: "The computer room was deserted and in darkness as we entered, but the machine was powered on with CICS and TSO up and running. So we closed the machine down and powered off in the standard manner."

Later in the day, the company's legal adviser, accompanied by the chief security officer and plant manager, served the operators with duplicates of the orders earlier delivered at their homes.

Says Hardie, "They gave us the orders but we were under the impression that we could only be thrown out by the county sheriff."

Hardie later received a telephone call from a person who informed him that an arrest by the police was imminent and who stressed the gravity of the situation. The operators left the computer room at about 3.45 that afternoon. The company then went ahead with proceedings for the injunction to be made valid on an on-going basis, and this was granted on June 6.

But if the machine was powered on and CICS and TSO were up and running, who had been operating the machines while the operators were on strike?

According to Hardie, a skeleton service is being provided by members of the company management, and certain systems and programming staff.

That state of affairs might seem to indicate that the operators' objectives are being easily thwarted, but Hardie points out that "three other sections within GEC have totally 'blackied', and will therefore not use any of the computer output."

He says that the operators felt from here?

"Obviously we cannot stage any sit-ins, but we can carry on picketing and keeping everyone informed about our situation. One thing is for sure — we will definitely not give in," said Hardie.

With all other sites that I have worked at or visited, for they all had at least two.

"This matter has been discussed at various meetings between the operators and our union representative, but it is apparent that it may take some time to get an emergency exit put in—if they decide to do it at all."

I contacted several experts about the matter and the legislation mentioned included the Health and Safety at Work Act, and the Fire Precautions Act of 1971. The most practical advice I was given, and will now pass on, is this:

Contact your local public health inspector or get in touch with your local branch of the fire brigade and ask for the fire prevention officer.

In either case explain the situation to the authority on the matter and he will take the appropriate action.

Operators often complain that nobody listens to their point of view. Well, Op Spot is listening and Bernard Allen would like to hear your opinions and ideas on all matters relating to computer operations.

Your letters should be sent to: Op Spot, Computer Weekly, Dorset House, Stamford Square, London EC1 9LU. Telephone: 01-253 8541. Telex: 63100. Cable: 63100. Fax: 01-253 8542. Directly on 01-253 8543.

a bit isolated at the beginning of the affair because it seemed as if the other union members, understandably, did not fully appreciate their position. However, Hardie now feels they are fully aware of the operators' situation, and he is pleased that the support has grown in strength as the dispute has gone on.

In this context, the operators have produced leaflets giving information about the situation to date and calling for all ASTMS members to "black all computer input and output and refuse to use the VDUs", as Hardie puts it.

They have, of course, also regularly picketed GEC's Coventry sites "using no violence but just keeping everyone informed about the situation," says Hardie.

But their activities have not been restricted to Coventry, because on Sunday, May 14, they attended the ASTMS annual delegates' conference, held at the Dome, Brighton.

Recalls Hardie, "Ten of us along with some union officials left Coventry in a mini-bus at 4.00 in the morning. We wanted to give further publicity to our case and ask for financial support."

They stood outside the building with banners and waited for the delegates to enter the conference. Continues Hardie, "We spoke to some members as they went in and then we entered the visitors' gallery to watch the proceedings."

Hardie says that the venture was well worthwhile because one of the delegates spoke on their behalf and they collected £308 towards their strike contingency fund, "including a contribution from Clive Jenkins who wished us the best of luck."

Where do the operators go from here?

"Obviously we cannot stage any sit-ins, but we can carry on picketing and keeping everyone informed about our situation. One thing is for sure — we will definitely not give in," said Hardie.

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HINT OF THE WEEK

DOCUMENTATION is the topic of this week's hint, and it comes from Ron Linton, computer operations controller at Manchester Polytechnic, and a regular contributor of hints to Op Spot.

In a batch environment, precede each job with a punched card which has information relevant to the running of the job, says Linton.

He points out that a punched card is large enough to hold such data as the job class; the core storage requirements; the discs and tapes to be used; whether the job may be cancelled; and the telephone number of the programmer concerned.

The card may be taken from the rest of the deck after the job has been put through the reader, and given to the console operator for reference.

When the job has finished, the card can be placed with the deck and the job's output in order to be sent back to the user.

Using this method, information is at hand while the job is actually running in the system, which can do much to ease the task of the operator.

releases of the operating system, ago."

In reply to the comment that, "Half an hour after the commencement, the operators present will call for a coffee break," he adds: "Operators do work irregular hours and are forced to take irregular coffee and meal breaks, which are prone to frequent interruption and so are all the more precious."

Pointing to the value of an efficient operations department, he continues: "When it comes down to basics, it doesn't matter how many nanoseconds a programmer can save in writing the most brilliant of programs — if the operators don't know how to run it, or it takes so long because of disc, tape or paper changes that the output will be delayed and the user upset."

In this context, he points out that DP managers "lavish money on new equipment or new software packages without organising adequate training for the operators, and then wonder why there are problems."

Finally, he has some advice for the author of the Focus article: "Next time Focus, don't be so rash in what you write."

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US-Europe public electronic mail by the early 1980s

A TRANSATLANTIC electronic mail service by satellite between the US and Europe could be in full operation by the early 1980s, now that discussions are under way between the US Post Office and the postal authorities in the UK, France and West Germany. If problems like compatibility of equipment are ironed out, a month-long demonstration will take place in February or March next year, followed by a one-year field trial. This will involve the Intelsat satellite.

Meanwhile, the development of a domestic electronic mail network by the US Post Office has reached the stage where special transmitting and receiving equipment has been tested.

The equipment includes a very high speed facsimile type scanner for transmitting letters, and a high speed printer for the receiving end which reproduces each letter page on to A4 size paper. The pages are then automatically folded and put into envelopes by machinery developed by Pitney-Bowes.

The high speed printer was developed for the US Post Office by Versatec, the electrostatic printer/plotter manufacturer. It handles 11-inch wide paper, printing 84 inch wide A4 pages on their sides at a rate of 175 inches, or about 20 pages a second.

This print speed, equivalent to about 80,000 lines per minute, is far faster than any electrostatic printer that is now available commercially. But it was not difficult to achieve, according to Versatec, because the speed of electrostatic printers is kept down in practice only by the inability of computers to feed them with information fast enough.

One of the biggest problems to be overcome before this public electronic mail system can go into live operation will be getting permission from the US government and approval from the general public for private mail to be opened and scanned in the Post Office at the transmitting end and printed out at the receiving end.

But with the vast distances between cities in the US, the speed offered by the electronic mail system could make it a very useful service for customers wanting fast delivery of letters that are not highly confidential.

Electronic mail will be one of the services offered by Satellite Business Systems, the firm in which IBM has a major shareholding, but the main difference between the SBS system and the US Post Office system is that SBS users will be mostly big companies transmitting electronic mail from their own terminal equipment.

Previously a manual system was employed in which "pencil and paper" work was sent to BSC's management services centre in Sheffield for processing on an Elliott 503 machine.

Development of the LTCM system took about a year, and the software is based on Scicon's mathematical programming system Sciconic, and is supported by a wide range of commercial software including MGG, Sciplo, and Special For

trans enhancements. It is likely that after another year or so of using the system BSC Stainless and Scicon will market their expertise in this specialised application to other interested parties in the steel industry.

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Co-op orders a 2960

IN the year since ICL announced the emulation facility on the 2960, orders for the machine have grown rapidly. Latest to the London Co-operative Society, which is replacing its ICL 1800 with a one Megabyte 2960.

Initially running under DUE, the 2960 will be used to implement the society's new management control system which treats each of the 600 outlets in the London area as a separate cost centre.

The system will also cover Co-op bakeries, farms and funeral service.

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DG system for yarn mill

STOCK taking time has been cut by half at Gratec, a US yarn mill, by installing a Data General Micronova-based general business system, according to general manager Cornel Bowden. The Data General system was chosen in competition with others from IBM, NCL, DEC, Burroughs and Wang because of its flexibility, its competitive price and the availability of several languages, said Bowden.

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An interactive transaction processing system called Trax, for Digital Equipment PDP-11 systems, has been introduced by DEC at prices ranging from about £87,000 for an eight-terminal system based on a PDP-11/34, to about £140,000 for a 20-terminal PDP-11/74 based configuration. It includes a new intelligent terminal, the VT82, which provides form handling and error-detection capabilities plus a software system which places special emphasis on file handling, resiliency and data protection capabilities.

Three big orders for Datatext

ORDERS for three large shared-logic word processing systems have been placed with General Computer Systems of London. The orders are for the Datatext IV announced recently (CW, May 25) which uses purpose-designed intelligent VDUs.

Two of the systems are going to Cadbury Schweppes at Bourneville, Birmingham, and will form a 23-station network, using five different locations in the building. There will be two CPUs and six printers, and if one processor is out of action the screens can be switched to the other. The order is worth £140,000. Text storage will be on two 28-Megabyte disc units.

Purchase orders will be typed on the word processor, with the information from them simultaneously recorded on magnetic tape for transfer to the firm's IBM 370 mainframe. This is the accounting system will be updated without duplicate keyboarding by the data preparation department.

A 12-station Datatext IV has been ordered by ICI Agricultural Division at Billingham. This is costing £84,000 and will be operated by two separate departments.

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PDP-11/34 minis for Tote

AFTER a detailed study of how to computerise its on-course business, the Horserace Totaliser Board has decided to acquire six mobile systems, each based on two Digital Equipment PDP-11/34 minicomputers and supplied by Gamma Associates.

The six systems will be moved around the country along with 400 tickets issuing terminals manufactured by Control Systems of Uxbridge, which will also install and commission the systems, having been appointed as the prime contractor.

Apart from issuing tickets, the Tote systems will be used to calculate dividends and cash winning tickets and will be able to handle win, place, combination and multiple bets of any value.

Apart from Gamma Associates, some of the other sub-contractors include SEN

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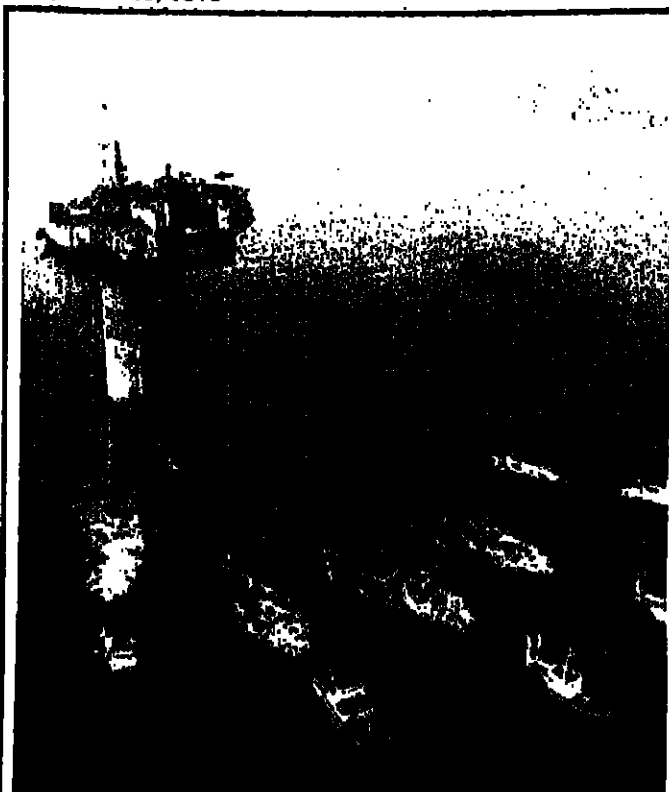
Documents to this effect

More staff taken on by Systime

AS part of its expansion plans, the Leeds-based minicomputer systems manufacturer, Systime, is currently taking on more R&D staff, including engineers and software development personnel.

They will work for two senior managers who have just been appointed by Systime to report to the firm's technical director, Ian Fallows. One is Barry Slinger, formerly plant engineering manager with Mullard at Hazelgrove, Cheshire, who has taken over as product development and engineering services manager at Systime.

The other new man is Ian McNeill, who has joined Systime as systems software development manager. In this post he will be responsible for the development of operating systems, networking systems, telecommunications and software for micro based controllers. He was formerly a senior project manager in the computer special systems section of Digital Equipment at Reading.



SHOWN on its way to the Ninian offfield is the Howard Doris platform. One of the design contractors to Chevron Petroleum (UK), was a recently-acquired subsidiary of University Computing, Electronic Calculus Ltd. ECL conducted finite element analyses of the entire structure, and also used its space frame analysis program, Eolipse, for discrete analysis and design checks of the steel deck. Chevron had access to UCC's twin Univac 1108 installation.

Logica takes look into the future

TWO new books have been published by the Simplification of International Trade Procedures Board; one illustrating the possible future trends for computer systems and the other setting out recommended standards of data formatting for those in the import/export business.

The first book, "Future Trends in Computer and Communications Systems," was prepared by software consultancy Logica for SITPRO as part of a project to develop standards for data interchange, details of which are given in the second and bigger book, "Computers in International Trade and Transport - Data Standards."

In looking at possible future trends, the Logica study makes a number of predictions, which it backs up with graphs, tables and other illustrations, on what sort of changes one can expect to take place between now and 1990 - although it does venture as far as the year 2000 in the last chapter.

Among its basic conclusions, it states that "the prices of processors will decrease dramatically, particularly those of microprocessors," although it does balance this with the further statement that "trends in software are unlikely to lead to similar reductions in costs, but are expected to lead to improvements in the implementation and operation of computer systems."

Among other predictions are that there will be limited improvements in public telephone/telex networks for the period under study, but new data networks will offer greatly improved transmission facilities; and computer systems, particularly databases, will gradually become easier to use in terms of physical access and easy-to-use languages.

And in the long term (1990 onwards) computer systems may develop to the point where complex calculations will be carried out on hand-held or desk-top devices, mainframes being used primarily for database applications.

The second book, "Computers in International Trade and Transport - Data Standards," is, in fact, a manual for UK trade and transport organisations that provides them with a glossary which itemises the standard formats for documentation and recommends or lists coding systems that cover the requirements of importers/exporters, forwarding agents, carriers, port authorities, and HM Customs.

Further sections also deal with standards for the interchange of data between computers and other related equipment over telecommunications links, or by other media such as magnetic tape.

All the standards have been designed to be independent of

both the type of computer and system application, and the manual took 18 months to complete. It comes in two loose-leaf volumes and was compiled with the assistance of over 80 UK companies and organisations.

"Future Trends in Computer and Communications Systems" costs £12. The "Computers in International Trade and Transport - Data Standards" costs £26. They are available through NCC Logistics Ltd, Dunham Lane, Leitchworth, Herts SG6 1LF.

On show in Switzerland

THIS month sees the latest in a growing number of European microcomputer exhibitions and conferences, when IMMA 78, the International Microcomputer, Minicomputer and Mainframe show, gets under way for the third time at the Palais des Expositions in Geneva, Switzerland.

Over 90 companies are taking space at the show, which runs from June 20 to 22, and is an exhibition will be supported by three days of conferences, with three sessions running in parallel on each day.

Among the well-known names scheduled to appear are Ampex, Data General, DEC, Ferranti, Hewlett-Packard, Honeywell Bull, ITC, Comshare, Imal, Natsig, Semiconductor and Plessey. Other companies come from Switzerland, France and Italy.

Further information can be obtained from the organisers, Kiver Communications, at 185 Fwell Road, Surbiton, Surrey.

Rory Johnston reports on the International Word Processing Exhibition at Wembley

ELECTRONIC mail was the hottest topic at the International Word Processing Exhibition at Wembley last week. Several manufacturers showed their machines communicating with each other over Post Office lines. These demonstrations made the point forcefully that the obstacles to full-scale paperless communication between firms are now largely administrative and political rather than technical.

As far as other technical developments go, it was clear from the word processors on show that their capabilities are rapidly converging; most can now do more or less the same things. Forwards-and-backwards printing, justification, decoupled printing, and other features are becoming almost universal. It would appear the designers are working on the principle of "Great Minds Think Alike".

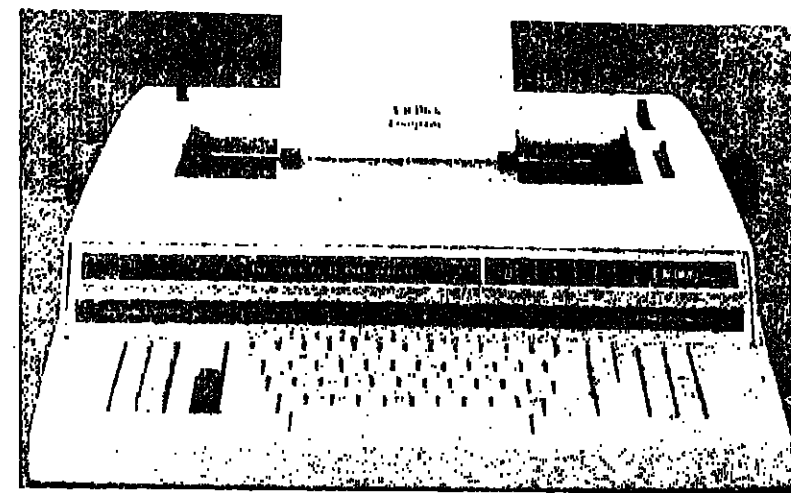
User interfaces and their ease of operation, however, are not nearly so consistent.

Twenty-nine word processor suppliers displayed their wares at the show, along with several component distributors and makers of dictating equipment. BETA, the organisers, report that 6,239 visitors attended, a 40% increase over last year; yet the show did not seem particularly busy, perhaps because the number of suppliers in this market appears to be increasing faster than the number of customers.

Prominent among the machines seen communicating at the show were the Philips WP5001, Logica's new VTS/100 (CW, June 1), and the Ontel machine, being sold as the Montytype 80 (this last machine is also being sold by Interscan, who call it WordCom, and by Olympia).

Programmability is a novel feature, that several word processors

Great minds think alike in paperless communication



Pictured right is the new Magna II from A. B. Dick, costing £5,990. It uses magnetic cards for storage, both of text and user-defined programs.

processors on show now have: the DEC WS78, the A. B. Dick Magna II, and the Rank Xerox 850 range among them. This allows the user to record a sequence of editing keystrokes in the memory, and then perform long repetitive operations automatically, in the same way as some calculators now work. This promises to be very useful.

Of the new model on show, the star was definitely the Xerox 850 Page Display System. It is so new to the UK that the Rank Xerox staff themselves know not much about it, and it has a suitably astral price: £11,950 to buy, or £420 a month to rent. Its most impressive feature is the large screen, 102 characters wide by 70 lines high, thus big enough to show a full page at one time and make layout con-

siderably easier. The characters are clear and are displayed black on white, and this being much more like paper than many WP screens, it will probably appeal to typists.

The cursor on the 850 is moved about by means of a capacitive disc. According to where you put your fingers on the disc, the cursor moves in the corresponding direction. This is quite a convenient device but it struck some users as rather too much of a gimmick.

The 850 uses floppy discs for

storage. There are relatively few function buttons on the keyboard, most operations being selected from a "menu" on the screen. All the features of the 850 screenless machine are there, together with new ones such as automatic expansion of abbreviations. User programming is done with a special command language, typed as text.

Another newcomer was the Digital Equipment WS78 standard machine, which is sold by Hamilton Rentals. This costs

£9,975 and incorporates the usual twin floppy disc drives and Diablo daisy wheel printer. The command language is conventional, using both menus and a large number of colour-coded function buttons. Unlike most screen systems, the cursor cannot move about the screen but stays always on the bottom line.

Documents can be put together from standard "boiler-plate" paragraphs, and letters can be typed repetitively with addresses inserted from a name and address file. The insertion program can be quite complicated, using "IF" instructions operating on data in the address file.

Also on the WS78, function keys can be defined as "macros," so that one key represents a sequence of keystrokes, and these macros can even be nested. This feature is used for tasks such as moving columns of figures left or right, as the machine has no special table mode for that purpose.

Other new stand-alone machines were introduced by Siemens, and by Fortronics, the Scottish firm which hitherto has specialised in banking terminals. Scientific applications are receiving more attention, in that

several machines can now produce complicated mathematical typing, with subscripts and superscripts, Greek letters, and scientific symbols. Among these machines were the Logica VTS/100, the Montytype 80, and Vyde's systems.

A sheet feeder-stacker for the ubiquitous Qume printer was on show on the Facit-Addo stand. This can be used on any Qume printer, requiring only a form-feed code from the software to drive it. It has the disadvantage that the typed sheets are stacked in reverse order.

Making a guest appearance on the Logica stand was Cy Endfield, inventor of the Microwriter, which was featured in Computer Weekly on May 11. His hand-held word processor attracted plenty of attention.

Mental indigestion was the main problem of many visitors, faced with such a large array of machines that appear on the surface all to be the same but different. One visitor took to striding on to stands and saying, "Right. Why is your machine better than all the others?"

Understanding the significance of the subtle differences between systems will require a great deal of user education.

One exhibitor reported considerably higher sophistication among his enquirers than last year. Many had quite a good idea of what they were looking for, he said, and some even had checklists of features.

COMPUTER WEEKLY'S NEW JOURNAL IS TURNING OUT TO BE A LOAD OF PULL.

LAUNCHED SEPTEMBER 1977-ALREADY AVERAGING 2500 ENQUIRIES AN ISSUE.

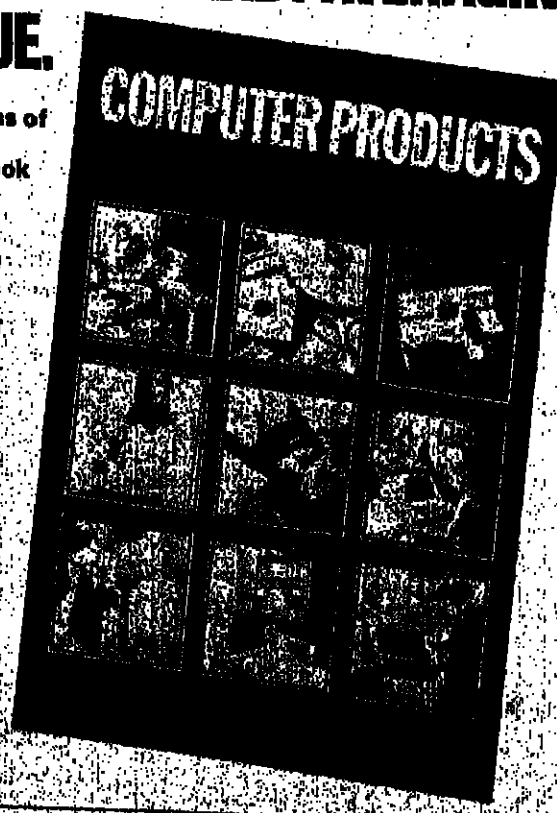
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Our latest issue received 3,600 enquiries and look where they're coming from! A precision-planned readership comprising 16,000 key computer executives in the U.K. and 24,000 in Europe... while terms of circulation control have now been extended to include 6,600 electronics design engineers, most of them specifying equipment for OEM manufacturers, the rest DP managers and Systems House executives with direct purchasing power.

Each month Computer Products International publishes a special supplement covering a particular range of hardware. In May, we're spotlighting Microprocessors; in June Teleprocessing Monitors; July Plotters and in September 8-bit Minicomputers.

But whatever computer product or service you're offering, an advertisement in CPI will give you a lot of new pull.

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Where next with standards?

● From page 4

that a series of switchable options should be provided so that extensions beyond a standard could be rendered non-operative when necessary.

Agreement that more rapid progress must be made seemed to be unanimous, but how the rate of progress might be accelerated was not quite so clear. Fears were expressed that international standards, once adopted, might prevent or retard further progress. This point leads to a need to apply carefully the ISO five-year review rule. All ISO standards are reviewed by its own committees on each fifth anniversary of their endorsement. A clear ruling that standards should not continue to be extant unless positively supported by a majority vote could and would solve the point made above.

One of the major obstacles to progress is the limited effort which is contributed to ISO's work. Excepting vendors of hardware and software, who often fund attendance of their representative, effort contributed by members of the user community is almost wholly voluntary and hindered by lack of funds to cover the contribution time while attending formal ISO meetings, and travel expenses. A classic recent example was the necessary revision of the Algol 60 standard (ISO-R/1005) by Dr David Hill of the Clinton Research Council, Northwood. His revision could not be progressed at a recent formal ISO meeting in his absence due to a lack of detailed appreciation of the revision; yet

the author was not able to attend the meeting.

Some way of funding participation, particularly in services of highly competent experts who are usually engaged at their primary (non-work) and are always busy, must be found. While some efforts can be channelled and co-ordinated by bodies such as the professional societies (eg the BCS and the IEE and the IDPMA) they do not have the funds to mount such operation. Indeed, their primary role is in a rather different one: they are often able to identify and quantify requirements and soundings from a wide range of interested and active people - including their full membership in important cases, and to advise on policies, eg what should a standard be drawn?

There are signs that the voice is beginning to be heard and appropriate co-ordinating bodies are appearing, such as the NCUS and the NCC in the UK and the NCC in the US. The NCC's counterpart, has an available in countries such as West Germany where GMD, the national budget approaching £100m from government funds, has a government-funded Computer Usage Institute. This is the first time that a body has been set up to coordinate such important work. Let us hope that in this case, the UK's working principle is not again slow.



In the foreground is the Xerox 850 Page Display System, showing the large, black-on-white screen and the cursor control disc. The 850 Display System, which has a single-line display, is in the background.

Conference offers an up-to-date assessment

THE value of OCR in word processing was emphasised by Dale Kutnick at the Word Processing Conference. It is more first drafts on ordinary type-writers and then typed them into a WP by OCR, rather than to type them on the WP straight off. This saves on capital investment on WP keypunches.

"Why use a \$15,000-plus machine to do something that can be accomplished equally well with an 850 machine?" he asked.

Kutnick is director of market research at the Yankee Group, a consultancy based in Cambridge, Massachusetts. He was one of three American gurus who were among the speakers at the conference, "Word Processing - An Up-to-Date Assessment," which ran concurrently with the exhibition. The others were Phil Dorn, of Dorn Computer Consultants, and Job Eddy from Dataquest, based in the heart of Silicon Valley. The importance of word processing direct from word processors was emphasised by Jeff Thomas, of the Solicitors Law Stationery Society, and Harry Selwyn, a communications manager from BP.

CA-SORT MAKES DATAPRO HONOR ROLL 3RD TIME RUNNING

To be sure, there were 31 other software packages on the 1977 Datapro Honor Roll... selected from thousands of software products.

But only twelve made it for the 3rd time... and none of the other 31 received a higher rating than CA-SORT for "overall satisfaction".

In fact, of all 32 products mentioned, CA-SORT obtained the second highest average rating.

The chart illustrated here shows how CA-SORT fared in all seven rated categories.

Highest rating for each category is 4. CA-SORT rated second highest for all parameters.

Overall satisfaction	3.8
Throughput/efficiency	3.8
Ease of installation	3.7
Ease of use	3.8
Documentation	3.6
Vendor technical support	3.2
Training	3.4

CA-SORT's Honor Roll rating is reflected in the number of its users worldwide.

Over 2500 users daily enjoy

savings in system resources and increased throughput every time they run a sort.

Isn't it time for you to optimize your sorting operations?

Why not call your nearest CA marketing representative and have him show you how many ways CA-SORT can help streamline your sorting tasks?

CA-SORT installs in ten minutes with absolutely no interruption to your daily work flow.

You can evaluate CA-SORT for 14 days... entirely without obligation. Send the coupon in today for prompt action!

COMPUTER ASSOCIATES

DATAPRO: a well known American research organization, conducts a survey each year to determine the most valued software packages in use in the USA. To our knowledge, CA-SORT, a three-time winner, is the only European package to achieve this coveted award.

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10

01-491 4706

Would you buy a used DP job from this man?

"No, seriously squire, lovely little number. Could be up to five grand a year... well, with a little overtime... well, with quite a bit of overtime actually. But anyway, the previous gent was very satisfied, very happy - he's in South America now they tell me. Still, this little Catchpole 69/1 1/2, it's lovely little machine, a real little mover. 'Course, the only system they've actually managed to run on it is the canteen menus, but Rome wasn't built in a day, was it?"

Ever had the feeling that the guy trying to sell you into a new DP job would be far more at home selling you a 1963 Vauxhall Cresta? Quite probably he has the same feeling, too. Because a lot of people have come into the DP recruitment market convinced they've found an easy way to make a fast buck. And a lot of people have been disappointed. At Knight Computer Services, we've never had any such illusions. Because one of

the things our long years in the computer business have taught us is that when you're looking for men and women to do a job and do it well, you can't afford to take short cuts.

So instead of talking you into a job, we'll listen while you talk about the sort of job you want, and why. (If you're going for a senior job, we're happy to bend our ears for anything up to an hour.) We'll put a true value on your experience, and a new perspective on your whole career. And because even in the computer business, people are still stubbornly individual, we'll get to know you as a person, not just as a list of qualifications and experience. And of course, we'll make sure any job we put your way does things for your earnings.

So you could find yourself looking for a new car, instead of just another used one.



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for contracts**

SYSTEMS ANALYSTS & PROGRAMMERS.

This division of Rolls-Royce specialises in applying aero-engine technology to marine and industrial uses. Our markets are world-wide, with every project presenting its own individual problems. To systems people with initiative and ingenuity we offer a unique and challenging environment.

Systems teams are already involved in the Production, Spares and Accounts areas. Now we plan further activities which means we want additional teams of Systems and Programming staff with relevant experience. There are opportunities at all levels. Our training schemes will expand your skills and maintain them up to the high standards you'd expect us to demand.

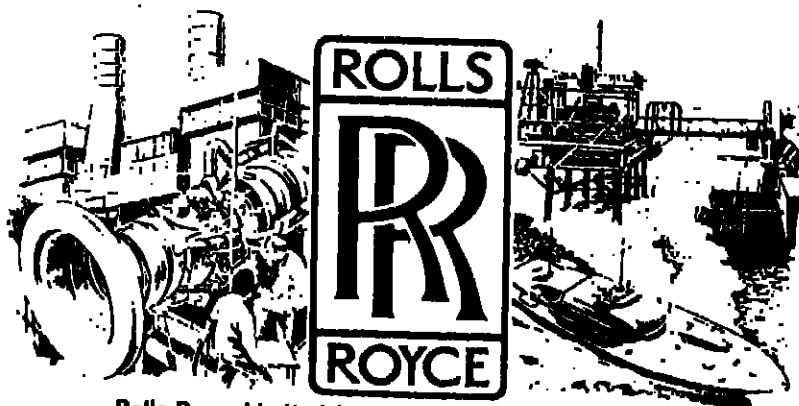
Currently we program in COBOL on

ICL 1900 hardware under George 2. In the light of our future requirements we are actively reviewing our hardware plans. We expect to implement database systems in our next phase of development.

Salaries are highly competitive. House prices are reasonable. Overtime is paid, and assistance with removal expenses will be provided where appropriate.

If you would like to talk over the vacancies before applying, please ring and ask for the Chief Systems Analyst or the Chief Programmer on ext. 228.

Or write for an application form to: Mrs K Brown, Personnel Department, Rolls-Royce Limited, Industrial & Marine Division, PO Box 72, Ansty, Coventry, CV7 9JR.



Rolls-Royce Limited, Industrial and Marine Division

Analyst/Programmer

How does your experience measure up?

Polaroid are an internationally famous company manufacturing 'instant picture' cameras, film and photographic apparatus for a wide variety of applications.

Data Processing systems are playing an increasing role in the continued growth of the company and recent developments include the implementation of online IMS Database systems in the areas of Materials Management and Personnel.

Development is commencing on extending the range of online systems to Accounting, Purchasing, and Financial and Production Planning.

We are therefore looking for a first-class Analyst/Programmer to perform Systems Analysis and Design, Database Design, Programming and tasks related to the implementation and maintenance of these systems.

The Hardware and Software facilities include IBM 370-148, OS/VS1, IMS/DC, Data Manager and Data Capture devices situated in user areas e.g. ITT 3280 screens.

If you have experience of any 3 of the following, we should like to hear from you—

IBM/370 IMS/DC
JCL Data Dictionary
Cobol Online Systems
OS/VS Manufacturing/Financial Systems
DL1 Distributed Processing

In-house and external training will be provided as appropriate.

As an international company we are in a position to offer a highly competitive salary plus a wide range of fringe benefits. Our modern plant is situated close to Loch Lomond and within easy travelling distance of Glasgow.

We can offer not only excellent working conditions in an expanding company, but an environment ideally suited to the pursuit of leisure activities. Telephone Alexandria 54141 Extension 228 for an application form or write to The Personnel Department, Polaroid (UK) Ltd., Vale of Leven Industrial Estate, Dumbarton G82 3PW.

POLAROID



COMPUTER SCIENTISTS

SOFTWARE: Engineers, senior analysts or scientific programmers, needed to develop real-time systems software, overall system design and operating system organisation for applications stated below.

HARDWARE: Senior eng's. needed with computer hardware and systems design/development experience, to support aircraft, space craft, missile and defence system projects.

LONG TERM, highly paid freelance consultancy posts in Germany or France.

Please send detailed resume including educational attainments to:

U.T.S. Eng. G.M.B.H. (Systems Division)
8 München 40
Frankfurter Ring, W. Germany

SYSTEM 32/34 RPG PROGRAMMER

Contract or permanent required URGENTLY for 6 MONTHS BANKING ASSIGNMENT in CENTRAL LONDON on IBM S34, to work alongside our existing team.

Contact: CHRIS PHILLIPS or BOB CARR on 01-388 0036.

Fraser Williams
computer consultants

JBA

We have been retained by one of the leading computer services organisations in Europe and the U.S.A. to recruit a number of professional and technical staff to join the expanding systems development teams. The growth of this group is part of the overall company plans to cater for the demand of its services over the next twelve months. The company, which was founded in 1949, has an impressive record of success and continues to set the standards in this sector of the computer industry.

Programmers and Analyst Programmers

London and Manchester up to £6,000
Birmingham up to £5,000

The systems development unit designs and installs tailor-made commercial systems for clients and provides support during the initial stages of operation.

Applicants must have a minimum of two years' experience on commercial applications, such as accounting, stock control, production, etc. and must have programmed in at least one high-level language, such as COBOL, PL/I or RPG II. Fortran would also be considered. For the Analyst/Programmer positions it is essential that candidates have been involved with the design of a major commercial system. Knowledge of on-line systems would be an advantage.

Ability to communicate with clients is essential as these positions involve considerable customer contact.

Systems Programmers Project Leader

London up to £6,000

The systems software team is responsible for the support of a large sophisticated multi-processor installation, the largest of its type in Europe.

The software includes teleprocessing, database and distributed processing facilities and offers the chance to work on new technology and software systems.

Candidates should have at least two years' experience of mainframe software, such as IBM, DEC, ICL, Burroughs, Honeywell or Univac, preferably in a multi-language environment. Ability to write Assembler is obviously essential together with a practical knowledge of diagnosis techniques.

Manchester up to £6,500

A Project Leader is required for the Company's Manchester office to take responsibility for projects through all the implementation phases.

Candidates should have a sound commercial background and at least one years experience in a project leader position. Experience of controlling teams against time and financial budgets is essential.

Applicants must be capable of demonstrating responsibility for the successful implementation of at least one significant project, including budget preparation, and be prepared to apply these skills in a sales intensive environment.

This is a positive opportunity to work with professionals in a dynamic and expanding organisation. As well as providing a challenging and satisfying career the company can offer:

* Excellent salaries * Pension & Life Assurance * Free BUPA

Apply in the first instance to

JIM BAKER

JAMES BAKER ASSOCIATES, International Personnel Consultants

16 Maddox Street, London W.1. Tel: 01-491 4478

BRISTOL... BRISTOL... BRISTOL

Due to a proposed expansion scheme which will considerably enhance their existing data processing facilities, our Clients a medium sized engineering company located in Bristol, wish to appoint the following:

Project Leaders

Reporting directly to the Data Processing Manager, Project Leaders will be required to fulfil an extremely important role in the proposed development of Batch and On-Line communication systems in two specific user areas.

The majority of the development work will occur within production and stock control. Suitable candidates will require either as a Project Leader or Senior Analyst relevant experience within a manufacturing environment.

The development of commercial systems although less complex is considered of equal importance. In terms of relevant experience applicants will require considerable prior involvement with financial systems.

Systems Analyst

Working in close liaison with a Project Leader, Analysts will be involved in the design of Batch and On-Line Systems for both the commercial and manufacturing areas.

The position would most suit an Analyst with 2/3 years' systems experience. However, serious consideration would be given to applicants with either an O/M background or a part qualified accountant with commercial accounting experience.

Programmers

Although there is a requirement for more than one Programmer our Clients are particularly interested in recruiting as a Senior Cobol Programmer, an applicant having had considerable ICL 1900 applications/standard software experience.

For the other posts ICL experience is not essential, although beneficial. Consideration will be given to applicants completing either a BSc/HND in Computer Studies.

9A Princess Victoria Street,
Clifton, BRISTOL 8.

Sanderson
EXECUTIVE RECRUITMENT
TELEPHONE 0272 39302

Senior Systems Analyst

Message Switching Software
Home counties to £8,000

Our client, a major multi-national company, prominent in the defence systems industry, has vacancies at both senior and intermediate levels for analysts specialising in the development of message switching and communications software. Successful candidates will have the opportunity to pursue creative.

work on challenging projects in a stimulating environment involving multi-processor systems. Applicants should have had experience with CORAL 66 or Macro 11 and be familiar with RSX 11M and RSX 11S. Career prospects are excellent, starting salaries realistic and there is a full range of company benefits.

E. Sutton, Ref: 17015/CW

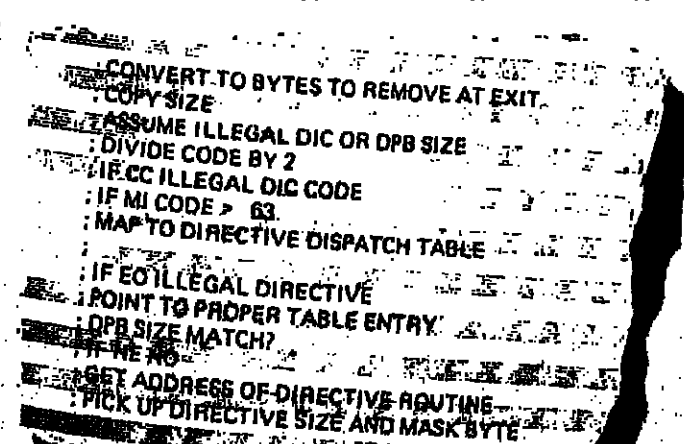
Male or female candidates should telephone in confidence for a Personal History Form to:
LONDON: 01-734 6852; Sutherland House, 516 Argyl Street, W1E 6EZ.



Hoggett Bowers
Executive Selection Consultants

BIRMINGHAM, CARDIFF, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE, and SHEFFIELD.

IF YOU TALK OUR LANGUAGE LET'S TALK BUSINESS



SENIOR SOFTWARE ENGINEERS

Systeme is a major British manufacturer of mini-computer based business systems, with a remarkable track record. Its consistent success ensures a highly stimulating working environment and significant opportunities for staff to extend their experience and income.

The company's development plans require the appointment of SENIOR SOFTWARE ENGINEERS.

A minimum of three years relevant experience is required, preferably including a period of working in assembler code.

at system level. Successful applicants will work in an expanding department and will be responsible for major software developments. These projects will include developments related to operating systems and tele-processing monitors for FDF IIs & VAX IIs. An attractive salary is offered with participation in a bonus scheme. Pension scheme and a relocation assistance available.

Write or telephone to:
IAN McNICOLL, Systeme Limited
Concourse Computer Centre
432 Dewsbury Road, LEEDS LS11 7DF
Tel: 0832 707411.

SYSTEME

Software Manager

Hertfordshire c.£8,000 + car
The dynamic software development group of a U.S.A. computer manufacturing company now require a manager to take over part of the current project team. The work is technically orientated involving the operating systems and communications aspects of mini-computer processing within terminal networks. Candidates must have proven management experience, be highly communicative and have the flexibility to handle all the duties associated with new product development. A heavy software background and ambitious aspirations are essential.

Excellent prospects and satisfying career goals. Contact Mike Croamer

Systems Consultants

Berkshire to £7,000 + BUPA
A major communications network that will link sites in the U.S.A., U.K. and Europe is just one of the projects being developed by this important American company. Through internal promotion, two vacancies have arisen in their European Systems team which provides support and advice on project development.

Ideal candidates will have considerable experience of IBM hardware and software, and will have controlled at least one project of reasonable size from start to finish. The ability to deal with, and advise, management at all levels is essential and some appreciation of management problems would be an advantage.

International travel, high salaries and unlimited career opportunities are available for the right people. Contact: Andy Wright

Programmer/Analyst

Basildon c.£5,500
Our client is a well established manufacturing company with an expanding world-wide market. Due to this expansion, they now wish to recruit a Programmer/Analyst with 18 months + COBOL experience under OS. Experience with BOMP or financial applications would be an asset. However, training will be given where appropriate.

In addition to the chance of involvement in analytical design work, self-motivated d.p. professionals will have a progressive career path. The company also offers re-location assistance, where applicable, a subsidised canteen and an excellent pension scheme.

The salary quoted could be significantly higher for the successful candidate with ideal experience. Great opportunity to maintain high living standards by not travelling into London. Contact: Mike Croamer

For further information on any of the above vacancies please contact the appropriate consultant.

If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.
JAMES BAKER ASSOCIATES, International Personnel Consultants
16 Maddox Street, London W1. Tel: 01-491 4478

Business Systems Consultants

South London based up to £7,000
Our client, one of the major computer manufacturers in the UK, has opportunities for Business Systems Consultants to join the Customer Support group based in South London.

Applicants should have five years' experience in data processing with the majority of that spent in the design and implementation of commercial applications. For the more senior positions candidates must have undertaken feasibility studies and been involved in defining user department requirements. The Company is looking for staff with maturity, sound business background, diplomacy and the ability to meet objectives with minimal supervision.

Excellent salaries and career development. Retraining available. Contact: Jim Baker

Engineers

Surry Up to £6,500
Our client, a well established computer services organisation, is about to form its own computer maintenance group and has vacancies for two engineers. The existing mainframe installation will be expanded later this year to include DEC 10 systems.

Applicants should have at least two years' experience of the maintenance on the DEC 10 or PDP 11, although a background of similar hardware would be considered. Knowledge of software, diagnostics, unit and board repair is obviously essential.

This is an ideal opportunity for career development since responsibility and promotion will be given at an early stage. Excellent basic salaries, shift call out allowances, LV's and other generous fringe benefits, including relocation where applicable. Contact: Jim Baker

Analyst/Programmer

City up to £6,000 + 2% mortgage
A specialist city bank has retained us to recruit an Analyst/Programmer to help in the development and maintenance of a highly sophisticated real-time foreign exchange system.

The ideal candidate will have experience of programming in MACRO-11 under RSX-11M on PDP11-70 in a financial/banking environment. However, if you have good, solid experience of programming and design work in the financial field and would welcome the opportunity to be retrained, then please apply immediately.

Excellent salary and several valuable fringe benefits are offered for the right experience. Contact: Andy Wright

Data Processing Staff

£3,000 - £5,500 p.a.

Leading life assurance office,
Salisbury, Wilts.

We are a very successful and forward-looking life office dedicated to intense computer involvement with on-line applications for all user departments, including New Business, Policy Servicing and Actuarial Departments. We need experienced, ambitious people at various levels to strengthen our small development team.

We can offer you really stimulating and challenging work using the latest techniques, with good opportunities for progress and professional development. As a bonus you can live and work in Salisbury, a cathedral city in a pleasantly rural area, convenient for Bournemouth, Poole and Southampton.

Two Systems Analysts (up to £5500)

Job: Systems development at business specification level and subsequent implementation of new systems. Our requirements: Education to degree or 'A' level standard, five years DP experience, two as analyst. (Good background at business systems level).

Senior Programmer (c. £5000)

Job: Advising on computer system design. Our requirements: ICL 1900 COBOL experience using George 2, 2+ or 3. Communications background (e.g. DRIVER). Knowledge of database and structured programming helpful.

Computer Operators

(up to £3000 including shift allowances)
Our requirements: Age at least 20, educated to 'A' level standard. Minimum of one year's operating experience on disc based ICL 1900 using George 2 or George 2+.

In addition to a good salary we offer excellent fringe benefits. Please apply quoting reference No. HO/24 to:-

Miss J. E. Barry
Personnel & Training Manager
UK Prospects
Dolphin House, New Street
Salisbury, SP1 2QQ, Wilts.

Applications are invited for the following posts:
Faculty of Business - Banking Precinct
Department of Systems and Computing

Lecturer II
Business Administration

To teach in the field of business administration, organisation, or policy. Some knowledge of computing applications would be an advantage. Applicants should be graduates with an interest in new developments in teaching methods and in part-time education. (Ref. S/BE 118A)

Lecturer II
Systems and Programming

Applicants for this post should have recent commercial, industrial or teaching experience in Operating Systems and Programming in COBOL. Appropriate academic qualifications should be held and experience of ICL 1.800 series would be an advantage. (Ref. S/BE 118B)

Salary Scale: Lecturer II: £4,101-£8,568 per annum
(Plus applicable London Allowance)
The above posts are available for appointments as at 1st September, 1978.

Further details and application form from:
The Senior Academic Personnel Officer (2)
North East London Polytechnic
Forest Road, London E7 4JB
Telephone: 01-527 2272 (Extension 20)

Closing date: 30th June, 1978.
NELP North East London
Polytechnic

2903
COMPUTER
OPERATING
MANAGER
BIGGLESWADE
c.£5,750

Dalgely Agriculture Limited control its Arable trading activities from its office at Biggleswade. An ICL 2903 Model 40/38 with 2 x EDS 30 Discs will be delivered in September and will take on the current bureau based systems to give a complete in-house facility.

The new post of Operations Manager will carry responsibility for the processing of the various systems already developed and for implementing new systems as they become available.

Full involvement in the commissioning period together with the recruitment and training of additional staff is envisaged.

Applicants should be able to demonstrate familiarity with the 2903 range of equipment and associated peripherals. Experience of supervisor would be an additional advantage but is not essential. If qualities of leadership can be displayed.

Please apply by letter or telephone to:
Miss A. E. Phillips
Dalgely Agriculture Limited
Forest Road, Biggleswade, Beds.
Telephone: 0455 51222

KBS COMPUTER SERVICES

KBS

SALES PERSON
WITH MANAGEMENT POTENTIAL
Basic £7,000 p.a.

KBS Computer Services provide a vital education and training service, Systems and Programming contract service and In-House Computer Bureau Service to Government, Commercial and Industrial bodies through offices in Liverpool, Coventry and London.

We seek a man or woman with experience in serious selling, a forceful but likeable personality with confidence based on a sound knowledge of the computer industry.

The successful applicant, based in Liverpool, will be responsible for generating new business and consolidating present accounts using methods which have proved

successful in his or her past experience. He or she will be expected to gain knowledge of competition by assessment of the market, instigate pricing policies and an involvement in the company's advertising and marketing objectives.

A first-class basic salary of £7,000 p.a. will be offered, plus company bonus, pension scheme and company car. In addition to the benefits of working for a progressive company.

If you are a professional sales person, with relevant experience, apply in writing or by telephone for application form to:-



Mrs. Terry Davis,
KBS COMPUTER SERVICES
State Insurance Buildings,
14 Dale Street, Liverpool L2 4TH.
Telephone: 051-236 9718

UCA CURRENT
SELECTIONSNR. OPS/OPERATORS
£4,000 to £5,500 Inc. N LONDON

A major IBM 370/OS user is offering really excellent pay including high salary and paid overtime plus paid removal expenses. You must have a minimum 1 year OS experience though.
CV 24/1 Patricia.

JUNIORS PROGRAMMERS
£3,000 to £4,300 S.E. ENGLAND

You have only 1 year's commercial experience? Then you are in great demand. We have a large selection of first-rate companies who need people like you. Some offer mortgage assistance to the right candidates after short period with them.
CV 24/2 Annette

PROGRAMMER
£3,500 N.W. LONDON

In the travel business are urgently requiring an ASSEMBLER or ICL USERCODE programmer for real-time and DATABASE applications. A chance to take part in a major R/T project. Very nice travel perks.
CV 24/3

COMPUTER
PROGRAMMERS
£3,000 to £7,250

HOME COUNTIES

Programmer in ASSEMBLER or FORTRAN or COBOL for at least 1 1/2 years then a relevant experience to you. We now have a vacancy in NW or W London, Surrey, Berks for competent people in this field. The future is definitely going to be with computer professionals. Telephone for details.

RING
MAINTENANCE
LONDON

For a full time position in the maintenance of computer equipment in the City of London. The successful candidate will be responsible for the day-to-day maintenance of the equipment and will be required to carry out repairs and replacements as necessary. The salary is £3,000 per annum plus benefits. Applications should be sent to the Personnel Manager, Ring Maintenance, 10, Abchurch Lane, London EC4N 3DF.

UNIVERSAL COMPUTER ASSOCIATE RECRUITMENT CONSULTANTS



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Universal Computer Associates, established in 1968, has registered nearly 14,000 applicants in the D.P. industry and has subsequently filled vacancies within every type of organisation both in the UK and overseas.

If you are thinking of using a successful and friendly consultancy, whether it is for PERMANENT or CONTRACT vacancies, or for people to fill them, then UNIVERSAL COMPUTER ASSOCIATES ARE AT YOUR SERVICE.

PHONE: 01-995 3883 or 01-958 6138 up to 10 p.m.

PROGRAMMERS, ANALYSTS, CONSULTANTS

YOUR CAREER IS VITAL —

LET US IMPROVE IT FOR YOU IN 1978!



Computer Services & Recruitment Consultants

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Data Express House
3 Prospect Place, Heathfield Terrace, Chiswick, W4, 01-995 3883

Name (full)	UCA No.:		
Address	Telephone (home)		
	(used discreetly) (work) Ext.		
	Position required		
Age	Marital status	Salary required	
Period of notice	Children's ages	Areas required	
Car owner / driver	Foreign languages?	Willing to move? Within UK: Yes / No	Overseas: Yes / No
Education — 'O' / 'A' levels / degrees / other	Areas considered LONDON Yes / No		
EDP courses	Join a progressive software house / Consultancy / Bureau? Yes / No		
	Interested in freelance work?		

EMPLOYMENT RECORD				Programme languages & operating systems	Position, duties and applications undertaken and completed
Dates & final salary (most recent first)	Employers (most recent first)	Computer & model			

EDP EXPERIENCE					
Time period to nearest quarter year: Operating		Programming		Sales / other	
Control procedures	Systems	Management	Total in DP		
Languages and operating systems you know well					
Assess your experience: S = some A = adequate F = full (leave blank if not relevant) of the following:					
VRC/Word Processing	Time Sharing	Database Design	JCL	Microprocessors	
Drum	Disk	MICR/OCR	VDU	Data transmission	Real time
Software development	Scientific programming	Production control		Accountancy	

HURRY POST NOW!

No stamp needed if you post to Universal Computer Associates, PRESPORT, London W4 3RH

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MEDICAL APPLICATIONS UNIQUE CAREER OPPORTUNITIES MIDDLESEX & S. HERTS

Revolutionary portable software - Advanced processors -
Dedicated hardware - Micro-processors - Medical
imaging - Interactive data processing.

If you are a COMPUTER SCIENTIST, PHYSICIST, MATHEMATICIAN, SOFTWARE ENGINEER or REAL-TIME PROGRAMMER and are interested in the above areas, this could be for you.

We're looking for technical excellence and our clients are willing to pay for it. For example circa £5,500 for about two years' experience in such areas as MEDICAL RESEARCH, RADAR, AEROSPACE, SIMULATION, PROCESS CONTROL.

You'll join a closely-knit high calibre team creating technology packages in the context of medical imaging.

You'll get total job involvement and the opportunity to be innovative in a wide range of advanced software and hardware developments.

You'll have all the benefits and security associated with a large group acknowledged as world leader in advanced medical applications.

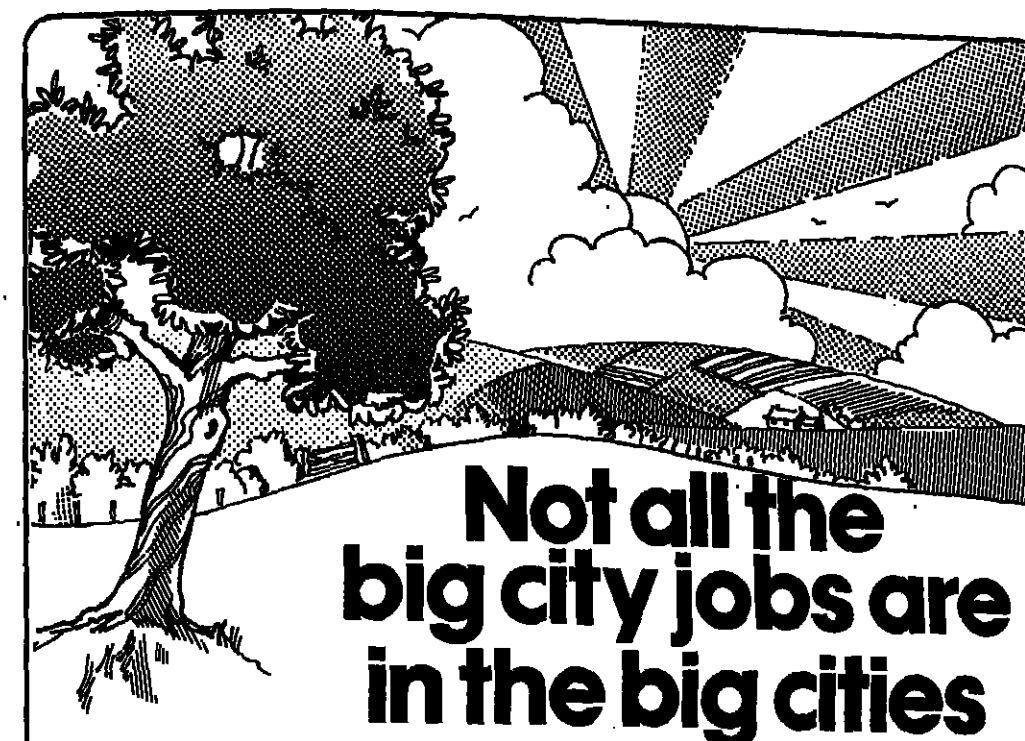
Find out more about how your career can develop in this diverse and rapidly expanding field by contacting MARK IRENS for a confidential discussion.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HR

TELEPHONE: 01-353 7141 (24 HOURS)

Hutton

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We offer interesting work, an excellent salary with real career opportunities, 4 weeks' holiday after your first year and a 32½ hour working week.

We also offer real trees, green fields and country pubs - with Brighton just 15 minutes away on a fast train.

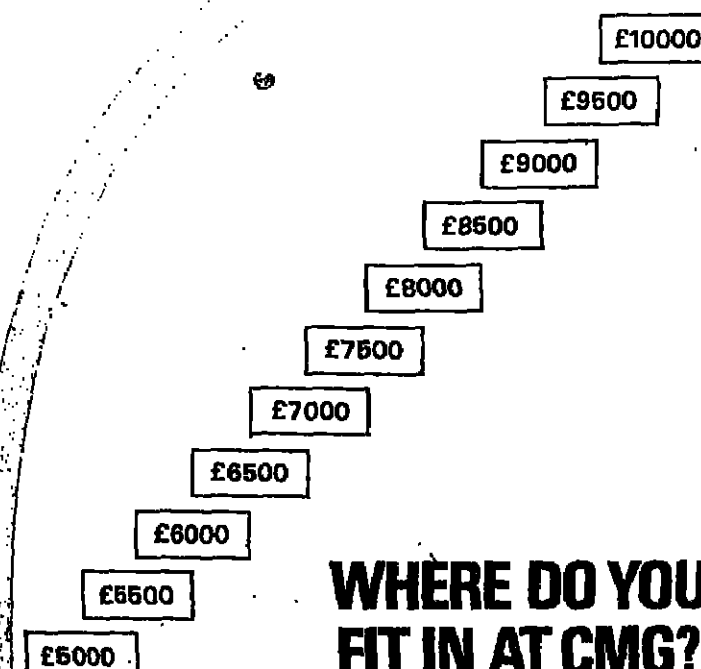
CDP is the computer centre for IPC Business Press Ltd., arguably the largest publisher of business journals in the world. Our work involves the use of database, on-line and other techniques in the service of publishing, subscriptions, typesetting, accounts...

Our offices in Haywards Heath are in a modern building two minutes away from the station. Just a few minutes more and you're into some beautiful country (When we say our grass is greener, we mean it.).

Currently we're looking for
Systems analysts and Programmers
Salary to £5,700 p.a.

Please ring or write to Sally Luthman,

Computer Data Processing Ltd.,
Penny Mount Road, Haywards Heath, West Sussex.
Tel: Haywards Heath (0444) 59188.



As one of Europe's leading computer service companies we are always in need of more good professional staff with a minimum of three years systems and programming experience.

We offer excellent salaries, benefits and working conditions and there is a tremendous variety of work. Promotion is rapid and is determined purely on ability.

Please write or phone for an application form to:

Janet Gothard,
CMG (West End) Ltd.,
Sunley House,
Bedford Park,
Croydon, CR0 2AP.
Tel: 01-688 8251

MAKE A MOVE TO COVENTRY

"SYSTEMS AND PROGRAMMING OPPORTUNITIES"

Our client a major manufacturing company based in Coventry wishes to recruit the following D.P. staff to augment their existing team.

At present the company are using a Univac 9070 running under O.S.4. Later this year a second machine will be delivered operating under V.S.9.

They are presently involved in the complete redevelopment of several of their major systems, using on line V.D.U.'s.

Training courses are available for candidates without Univac experience.

PROJECT LEADER to £5650

- At least four years' commercial systems including Production Control
- The ability for solving business problems
- Able to motivate and communicate effectively

SENIOR ANALYSTS c£5000

- Two years' commercial systems
- The ability to work independently
- Knowledge of on line techniques

PROGRAMMERS c£4500

- At least 12 months COBOL
- The desire to progress into systems
- The ability to work in a team environment

Contact: Graham Aston, M.E.C.I.

MARTINS COMPUTER SERVICES

First Floor, Western House, opposite Library Hotel, Broadwood, Coventry, Birmingham 40.
410, Telephone 021-643 2111. 24 hour answering service. Evenings and weekends 021-644 0931.

We are now able to interview until 6.30 p.m. and Saturday morning by appointment.



Berkshire + Relocation

Our client is a U.S. multi-national producing and marketing a complete range of mini computers to scientific and commercial users. Growth is fastest in the commercial area, and in order to provide high quality software products and environments to commercial users, they are seeking additional Software Programmers to strengthen their development activity.

The European Headquarters of the company is located in Berkshire, including one of the two software development centres in the world. Their products are produced for the world market and, as might be expected of an organisation of this stature, professional standards are high and the working environment congenial.

The people sought will have approximately 3 years' software development experience at Assembler level and will have an unparalleled opportunity to enlarge their practical experience on compilers or data base systems. They will receive excellent fringe benefits and salary up to £7000.

Enquiries concerning these openings, please, to Tony Baker on 01-499 4501.

RW 24/5

★ Opportunity for Early Promotion ★

Our client is the UK subsidiary of an American company engaged in the manufacture of interactive terminals.

The parent company has a well established computing function, and the UK subsidiary is now about to install its first ICL 2903. As a result, they now wish to recruit a capable and experienced Cobol Programmer to handle the implementation of a wide variety of accounting applications, some of which will be based on systems operational in the USA, and others which he will create himself.

The company's DP plans envisage a continuous growth and development for at least 4-5 years, and as there are currently no plans to appoint a Systems or DP Manager, promotion prospects could be particularly good for the Programmer appointed.

In addition to practical programming work, there will be early involvement in systems design and you can expect to be working closely with the US computer operation in Texas.

Enquiries in the first instance by letter to Tony Baker on 01-499 4501

RW 24/6

hutchinson-roeggins recruitment unit
10 Dover Street London W1X 3PH Telephone 01-499 4501

DATA PROCESSING DEPARTMENTAL HEAD

A vacancy has arisen for the above appointment in our Electro-Data Processing Department.

It is expected that the appointed applicant will be able to develop programmes for the company, and create and analyse new programmes for parts of the organisation still in the process of computerisation.

The work involves general co-ordination of all E.D.P. requirements including, in some cases, liaison with Bureaux, although the company has intelligent terminals connected via direct line to the Mainframe Computer at our head office in Germany, which offer keyboard and interactive facilities.

During the process of development frequent visits to our parent company in Germany will be expected.

Apply our reference LNM, or telephone Winfield Row 4181.

POLYSIUS LIMITED
THE BRACKENS
LONDON ROAD, ASCOT

INNER LONDON EDUCATION AUTHORITY
London College of Printing
SCHOOL OF SCIENCE AND TECHNOLOGY

Senior Lecturer in Computer Technology and Information Systems

The Senior Lecturer is required from 1st September, 1978 or as soon as possible thereafter to lead developments in Computer Technology in the College.

This is a particularly challenging post to those who have the necessary drive and enthusiasm, both to be responsible for computing throughout the College and to identify and expand those areas of the College's work where computing is applicable.

The successful candidate should ideally be a graduate in Computer Science and/or a member of the British Computer Society and will be capable of teaching within Honours Degree programmes and furthering research in this area.

Appropriate industrial experience would be advantageous. Salary in accordance with Burnham F.E. Report £8051-£7066 (bar - £7572, subject to formal approval, plus £402 Inner London Allowance).

Further details of the post and an application form, returnable within 14 days may be obtained from the Senior Administrative Officer, London College of Printing, Elephant and Castle, London SE1 6SB; Tel: 735 8484 (Ext. 227).

Doncaster Metropolitan Borough Council

FINANCIAL SERVICES

SYSTEMS & PROGRAMMING MANAGER

POST (34) £4685-£5200 plus £520 supplement

To be responsible to the Deputy Data Processing Manager for all activities concerning the development and maintenance of computer systems, specifically those relating to the systems and programming functions. Applicants should be members of the British Computer Society or equivalent and have a minimum of 4 years' experience in systems/programming together with experience in the control of staff. The duties of the post may subsequently be extended pending the LAMAC report.

Assistance with housing and removal expenses in appropriate cases.

Application form and further details from Civil Engineer's Department, 2 Priory Place, Doncaster (tel. 703 211), closing date 29th June 1978.

16 Bedford Row
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01-242 9356
Telex 21120



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in UK and international
computer appointments

occ computer personnel limited

Technical Support

Reading £3,300-£5,500

The following vacancies are at a computer centre providing an internal bureau service for a software house. Current hardware includes an ICL 2970 as well as two ICL 1903A and an ICL 2904 supporting a terminal network.

2800 Systems

The Support Technicians' function is to support and maintain all 2800 services provided by the centre and to provide technical support to operations units and users.

Candidates will probably have 4 years' experience in a computer operations or systems and programming environment with one year in a 2800 VME support role. Consideration will also be given to less experienced candidates with good potential and a minimum of 1 or 2 years' programming experience with a degree or HND qualification. They must have a personality suited to a support function and must be able to communicate clearly, orally and in writing. They must be keen to further their technical knowledge by learning constantly about new products and development units' work. Ref: 520/CW/Ronde Nuts.

1800 & Small Systems

The Support Technicians' function is to support and maintain all 1800 and small systems services provided by the centre and to provide technical support to operations units and users.

Applicants are expected to have a minimum of 1 or 2 years' programming experience with a degree or HND qualification, although 4 years' experience in computer operations and/or a systems programming background would be preferable, ideally to include one year in a 1800 George III support role. They must be capable of absorbing technical information on standard and new products and must be able to respond to support demands at all times. They must have very good communicating skills and must be willing to working in a servicing environment. Ref: 521/CW/Ronde Nuts.

If your experience is in line with the above requirements, please telephone or write to Ronde Nuts on 01-242 9356 (day) or 01-874 6372 (evenings/weekends).

Computing
Services
Association

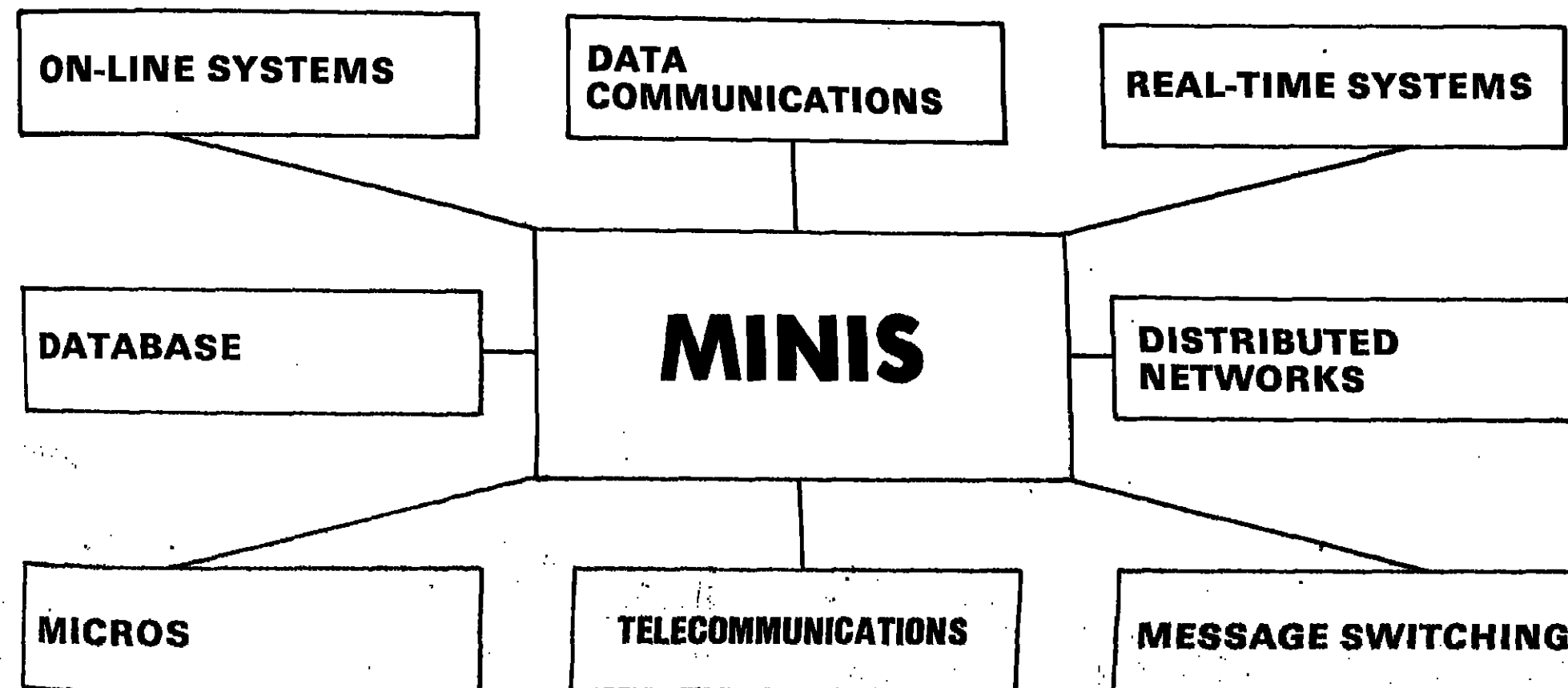


Accord Computer Efficiency LTD



Sophisticated HOLLAND Software

We are a recruiting company which has earned an outstanding reputation for high class software design and implementation in Europe. In return for your skills in any of the above sectors, we would like to offer programmers, analysts and consultants the following:



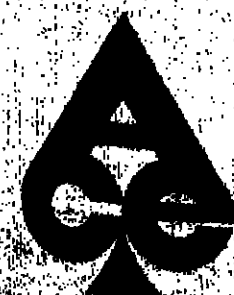
- ★ Technical and Scientific projects
- ★ Consistent career progression
- ★ Competitive Continental salaries
- ★ First class conditions of employment
- ★ Relocation paid, including family if applicable

Projects currently engaged upon are extremely varied and comprehensive in terms of the use of mini-computers and involve interesting and often complex systems.

Telephone Bill Seymour or Andrew Ellis for further details regarding positions available; and background information about living in Holland.

Accord Computer Efficiency LTD

Bill Seymour, Portland House, UK Office,
UK Office, 4 Great Portland Street, London W1N 5AA England. Tel: 01-580 3754
Andrew Ellis, Sarphedijk 56, Amsterdam, Holland. Tel: 020 264664/264082



International Small Systems Project Manager

MAJOR INTERNATIONAL BANK

Salary: Up to £8,000 per annum

Plus normal banking fringe benefits

We are specifically looking for someone with experience of NCR 299 and 399. Our client is a major International Bank installing a number of accounting systems throughout the world, covering such areas as the Middle East, India and the Far East.

We are looking for someone who has experience of the hardware mentioned, ideally, someone who has already worked for the relevant manufacturer, who would enjoy working for a significant period of time overseas. You would be totally responsible for installing a package that has already been developed but may require some modification, and you will have to spend a lot of time working on your own. Therefore, you will be a self-starter, and not someone who has to constantly "refer to base" for instructions.

Your ideal background would be a data processing one, then banking but more important, experience of 299 or 399. Quite honestly, if you do not have the latter experience you will be wasting your time in applying.

The opportunities are very good indeed, our clients regard this as a training base for about two years and thereafter, promotion is almost certain if you perform well. You should be able to demonstrate between two and three years' experience of working on the relevant hardware. You will have been responsible for at least one series of systems and will be anxious to move into a larger data processing area which this position will eventually lead to.

The international travel aspect is either attractive or it isn't, you have to be prepared to "pack your bags" and go at short notice, therefore, if this is a deterrent this isn't for you. However, if you feel you have the drive, the tact (most important), enthusiasm and technical ability, we would like to meet you.

The fringe benefits are excellent, they include a low interest mortgage, free medical services, non-contributory pension and a subsidised luncheon.

Please apply to John Goldsmith, Ref. 1886/CW.



WE ARE ALWAYS INTERESTED IN HELPING YOU WITH YOUR CAREER
John Goldsmith (Computer Recruitment) Ltd., 15, Buckingham Palace Road, London, S.W.1.
Tel: 01-828 5356-24 hour answerphone service.

JOHN GOLDSMITH (Computer Recruitment) Ltd.

Data Processing Manager

INTERNATIONAL BANK BASED IN KARACHI, PAKISTAN

Excellent Income Package

We want to meet a Pakistani National to take responsibility for the installation, development AND redevelopment of a number of very important accounting systems being installed by our client, a major International Bank. These systems will be installed initially in Karachi although responsibility for data processing will cover the whole of Pakistan.

We want to meet someone who has spent some time either here or in another Western country, learning the "tricks of the trade" of data processing. Probably now, you will be working as a Senior Systems Analyst or Project Manager with about six or seven years' data processing experience. The ideal specification will be someone who has come from programming then into systems and before that, will have achieved a professional qualification, ideally in the U.K.

Within the Bank's data processing unit — this is "number one in Pakistan", we are looking for someone who doesn't sit in his office all day hoping things will get done, because they don't do they? You will ensure that they do! Certainly, initially, you will have to lead from the front from the technical point of view and you will be very much dependent upon your own resources. However, as you progress successfully, your own responsibility will become much wider and eventually, encompass a wide range of locations.

The position offered is a rare opportunity, we do not remember seeing a comparable position, therefore, we are looking for someone who is prepared to relocate back to Pakistan, later if necessary, to travel elsewhere in the Middle East for our client, but first and foremost, get the new operation off the ground in an impressive way.

Please apply to John Goldsmith, Ref. 1683/CW.



WE ARE ALWAYS INTERESTED IN HELPING YOU WITH YOUR CAREER
John Goldsmith (Computer Recruitment) Ltd., 15, Buckingham Palace Road, London, S.W.1.
Tel: 01-828 5356-24 hour answerphone service.

JOHN GOLDSMITH (Computer Recruitment) Ltd.

Software Engineering

Research & Development - Brighton

ITT Creed is a world leader in the design and manufacture of teleprinter and data-transmission equipment. As a major division of ITT Business Systems, Europe's largest telecommunications group, innovation and sophistication are the keys to our continuing success in this growth market. Which is one of the reasons why we invest heavily in software research and design for new products.

This is the environment we are offering to the Software Engineer — a man or woman — who joins us now. The team is young and highly talented, and you will be expected to match up on both counts. You will have individual responsibility for developing mini and micro-based software systems. So you must have two years' or more programming experience in Assembler, preferably with micro-computer applications.

Although an advantage, shop-floor experience of advanced automation/control systems is not a necessity. In terms of formal qualifications, however, you will need a degree or HND/HNC in Computer Science or a related subject. A distinct advantage would be some experience of hardware and computer logic.

Salary is very attractive, and a good range of company benefits includes staff residential and a progressive sick pay scheme. There are all the advantages too of our location, with the benefit of both sea and country. And naturally, where appropriate, we'll help you out with relocation expenses.

Please write or phone for an application form to: John Heath, ITT Creed Limited, Hollingbury, Brighton BN1 8AL. Tel: Brighton 507111 ext. 3523.

ITT Creed Limited

SYSTEMS ANALYST

GREENFORD C. £8,000
A graduate with two years' experience in a commercial environment as a programmer or analyst is required for this position. A mature personality with a practical, analytical approach to work, an accounting and planning applications, assisting users and implementing new systems.

PROGRAMMER/ANALYST C. £6,000
NORTH BURY
This is an ideal opportunity for a programmer wishing to get involved in systems development work. International Company, requiring a good programming background with RPG 11 experience.

PROGRAMMERS C. £5,000
NEAR OATWICK
To work on commercial/business systems using mini-computers. At least one year's high-level or low-level programming language experience will be considered, not necessarily on minis.

SOFTWARE PROGRAMMER C. £8,000
NEAR OATWICK
If you have at least one year's recent experience of writing in ASSEMBLER, preferably on mini-computers, this vacancy will suit you. Experience of working on system software for a multi-processor system with communications and database is an added advantage, which will be well rewarded.

Please phone or call in for more details and an application form.

AMES PERSONNEL
TELEPHONE: 01-767 0611

London Borough of Enfield

Systems Analysts (2)

£4630 - £4800
(Phase III Award Pending)

We wish to fill two posts that have been created to assist with the Borough's development into "on-line" systems. Applicants should have a "sound" background in programming and systems analysis with some years' experience of either public or private sector data processing.

These posts offer a varied and demanding job in a modern, friendly, with attractive surroundings bordering rural Hertfordshire.

If you would like further information ring Ian Gray, 01-368 6588, ext. 2622.

An application form is available, upon receipt of fee, from the Borough Treasurer, PO Box 54, Civic Centre, Silver Street, Enfield EN1 3JF. Closing date 30th June, 1978. Please quote reference ORA/191.

Malmesbury, Wiltshire

Career Opportunities with Pye TMC Limited

Microprocessors Software Computer Aided Design

(Up to £7000)

The Company's Advanced Development Division is a forward looking design group, exploiting LSI technology in the application of stored programmed control to telephone switching and also the development of other advanced products for the telecommunications industry in both the Switching and Sub-Apparatus areas. The Division is situated at the Company's modern new headquarters in Malmesbury, Wiltshire.

SENIOR SOFTWARE ENGINEERS

Required to work in close collaboration with LSI circuit design engineers to produce new micro-processor based products. Applications are invited from Analysts/Programmers preferably with Intel 8080/85 and mini-computer experience, trained in the electronics industry. A degree in a relevant discipline is preferred but evidence of the completion of a relevant systems property document using C or Pascal language together with at least 5 years experience in this field is more important (Ref: ADD-WT).

SCIENTIFIC PROGRAMMERS

Required to work on the development of software tools for CAD, design automation, automatic testing and advanced graphics systems as applicable to the realisation of LSI circuit design. Successful applicants will be working on computer types SEL 32 and DEC 2050. Vacancies exist at both Intermediate and Senior levels. Applicants are invited from self motivated and creative people with experience of both Electronics design and Further programming. The successful applicant will have a degree in Electronics or Computer Science (Ref: ADD R B).

These positions are open to suitably qualified men and women. The Company which is part of the multi-national Philips Group, offers the full range of benefits including subsidised canteen facilities, and discounts on group consumer products, etc. Generous relocation expenses will be paid where appropriate.

For further information phone the Personnel Department on Malmesbury 2121 or write with full details of education and career to date (quoting the appropriate reference) to the Recruitment Officer, Pye TMC Limited, Swindon Road, Malmesbury, Wiltshire, SN16 8NA.



CONSULTANCY

West London/City
Mainframe and Minis
To £8,000 + Profit Share
+ Expenses

A successful medium-sized DP consultancy has career opportunities for consultants in its mainframe and mini divisions.

For the mainframe division, we expect programmers to have at least two years' experience of COBOL, PLI or MARK IV. IBM experience would be preferable, but full re-training will be given. Analysts should have two to three years' experience in systems analysis and design with a programming background — any additional skills such as teleprocessing or data base would be useful.

Candidates for the mini division should be experienced in programming commercial minis such as DG, HP or DEC, using COBOL, FORTRAN or ASSEMBLER.

The company offers high earnings, a friendly working environment and the opportunity to work on a wide variety of systems.

FOR FURTHER INFORMATION, PLEASE CONTACT MARK IRENS, QUOTING REFERENCE NUMBER CW/36/1.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE
HUTTON STREET, LONDON EC4A 3HR

TELEPHONE: 01-353 7141 (24 HOURS)

Hutton

SPECIALIST RECRUITMENT CONSULTANTS

MANCHESTER/LEEDS

SALES MANAGER
BASIC TO £8,000+12 MONTH GUARANTEE
GENEROUS CAR ALLOWANCE AND EXPENSES
DISTRIBUTED INTELLIGENCE/MINI COMPUTERS

Applications are invited from either established managers or senior sales executives ready to move into management, to join one of the foremost manufacturers of distributed processing systems in Europe. An excellent salary and expenses package will be paid for the person who can fill this key vacancy. Reference CW 36/2

SALES EXECUTIVES
BASIC £5,500 TO £6,500
12 MONTH GUARANTEE OF £1,500 TO £2,000
CAR OR ALLOWANCE
N. MANCHESTER + LANCS/LEEDS
+ YORKSHIRE/EDINBURGH
DISTRIBUTED INTELLIGENCE/MINI COMPUTERS

Applications are invited from established executives with proven records of selling successfully against quotas. Sound commercial experience in the min/mainframe industry and good applications experience in teleprocessing environments are particularly useful. Reference CW 36/3

APPLICATIONS WILL BE TREATED IN THE STRICTEST CONFIDENCE AND SHOULD BE MADE TO HQS BOWER, ADVISING DIRECTOR, PLEASE TELEPHONE WHERE POSSIBLE.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE
HUTTON STREET, LONDON EC4A 3HR

TELEPHONE: 01-353 7141 (24 HOURS)

Hutton

SPECIALIST RECRUITMENT CONSULTANTS

1574 من 1374

Portsmouth Polytechnic
SCHOOL OF ARCHITECTURE
**Computer
Programmer**

Post 464 (A)

A specialist is sought to create and develop computer aided architectural design programs within the School. The department has just acquired a Tektronix 4014-1 interactive graphical terminal linking to the Polytechnic's ICL 2960. The successful candidate will implement existing programs and, in collaboration with staff, develop new programs in areas of architectural education and design including computer aided learning, building utilisation, decision aiding, and acoustic, lighting and thermal design science.

Salary Scale: T3/4. Up to a maximum of £3,702 + £502 supplement per annum.

DEPARTMENT OF GEOGRAPHY
**Technician
for Computation
Laboratories**

Post 583

Duties include computer operating, digitising and data preparation in the department's computation laboratories. The successful applicant will provide technical services for a variety of computer applications in Geographical Science courses. Applicants should have experience of operating a mini computer and have oversight suitable for digitising work from graphic and stereoscopic images. A particular interest in computer graphics/computer mapping applications and/or familiarity with BASIC or FORTRAN languages would be an advantage.

Salary Scale: T1 or T2 up to a maximum of £2,853 + £470.25 supplement per annum.

COMPUTING CENTRE
**Applications
Programmer**

Post 561 (B)

A new ICL 2980 has been installed running under the VME/B operating system providing a computing service to the whole Polytechnic. Applications programming projects cover all aspects of the Polytechnic's work, including not only scientific and technical work but also the design and implementation of computer systems for the administration and library.

The Computing Centre seeks to recruit a programmer of graduate or equivalent qualifications, and some previous experience, who wishes to increase his/her experience by working on a large modern computer. There is a wide range of projects now being started, including graphics software, implementation of the IDMS database, and software to support minicomputers linked to the 2980.

Salary scale: AP2/4. Up to a maximum of £3,702 + £502 supplement per annum.

Application forms are available from the Staff Office, Portsmouth Polytechnic, Alexandra House, Museum Road, Portsmouth, or by telephoning Portsmouth 27881, extension 317.

**SOFTWARE ENGINEERS
COMPUTER AIDED
DESIGN AND
DRAUGHTING £6-9K**

Computervision a world leader in the manufacture and marketing of CAD systems, requires additional software engineers to join its expanding European development and support teams.

These posts will be based in Computervision's European Software Centre near Amersham and will involve occasional travel to other European Countries.

Applicants should have several years' experience of Fortran programming and preferably some knowledge of mini-computer operating systems and assembler languages. Experience in one or more of the following fields would be an advantage.

1. PC/ES design and production
2. Numerical control applications
3. Cartography
4. Communications

For application form, write or phone to:

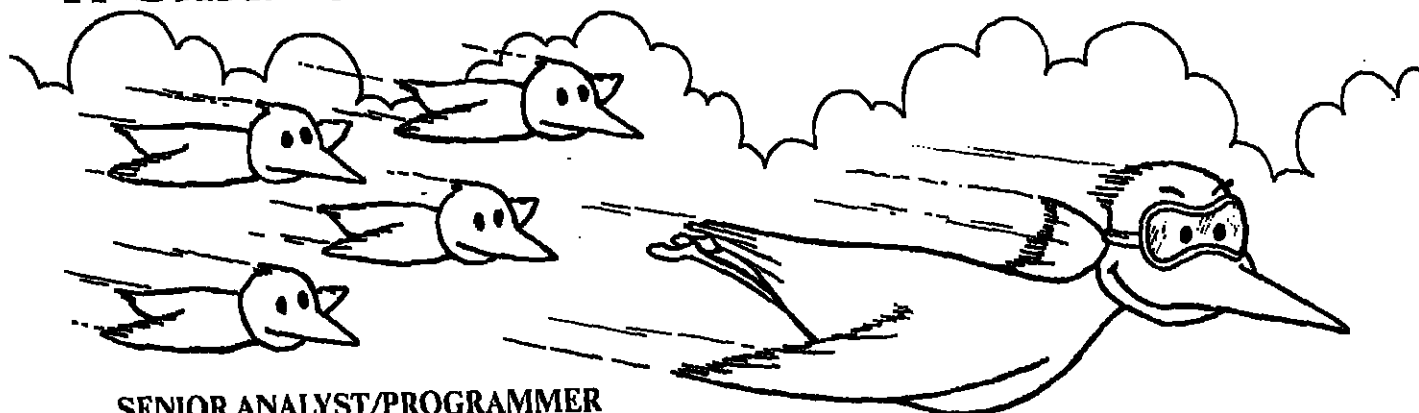
COMPUTERVISION LIMITED
Computervision House
Peppin Street Village,
Nr Amersham
BUCKS.
Hemel Hempstead (04947) 4771

DUSSELDORF
GERMANY

IBM/OS task master programmer for 6 months contract in Düsseldorf, excellent negotiable salary.

Focus Computer Consultants
01-487 5781

**MYRIAD
A CHANCE FOR YOU TO LEAD THE WAY!**



**SENIOR ANALYST/PROGRAMMER
(TEAM LEADER)**

BERKS/BUCKS BORDER To £6500
We are seeking a SENIOR PROGRAMMER or ANALYST/PROGRAMMER keen to enhance their career by becoming further involved in Systems Analysis and Design.

The position offers:-

- * Team Leading responsibility
- * Systems Design and Development Involvement

- * Training in IMS and TP Software Applications
 - * The Opportunity to Gain On-Line Real-Time Experience
- Suitable applicants will have at least three years commercial data processing experience with an in depth knowledge of COBOL. The Company offers RELOCATION ASSISTANCE, FIVE WEEKS HOLIDAY and an excellent starting salary.

MYRIAD APPOINTMENTS LTD

Please telephone for a confidential discussion or write to: 30 Fleet Street London EC4Y 1AA 01-353 0981

Home Office
Central Research Establishment
Aldermaston
**COMPUTER
SCIENTIST**

This post with the Information Division of the Central Research Establishment provides an opportunity to join a team of scientists and other operators assisting in the collection and distribution of research information to forensic science laboratories throughout the country.

The successful candidate will be involved in the day-to-day maintenance and operation of a 16K Hewlett Packard 2100A computer, associated terminals and, later, a new computer (planned to come into operation next year) with VDU terminals and on-line links to the forensic science laboratories. Members of the section are encouraged to develop their own ideas for applications into fully operational systems.

Candidates, normally aged under 30, should have a degree/HND/HNC in an appropriate discipline, a knowledge of small computer systems and experience of programming in FORTRAN.

Appointment as Higher Scientific Officer (£4100-£5450) or Scientific Officer (£2840-£4410) according to qualifications and experience. Promotion prospects. Non-contributory pension scheme.

For further details an application form (to be returned by 7 July 1978) write to Civil Service Commission, Alencon Link, Beasingstoke, Hants, RG21 1JB, or telephone Beasingstoke (0256) 68551 (answering service operates outside office hours). Please quote ref: SB/18/LA.



Technical Support

We are looking for the following experienced technical support people

HARDWARE preferably with big disc knowledge.
SOFTWARE with assembler and operating systems experience.

Why change to Data General

You'll receive a competitive salary that really matches your experience. Naturally, you'll receive standard benefits including a company car allowance and be eligible for an excellent pension scheme.

You'll be based in West London, but have the opportunity to travel to Europe on special assignments.

Don't miss this opportunity

Opportunities as good as this don't happen every day of the week. So don't miss out. Write or phone Janet Field at the address below - reversing the charges if you wish.

Data General
Data General Limited, Westway House, 320 Ruislip Road East, Greenford, Middlesex UB6 9DH. Tel: 01-578 9231.

Technical Author

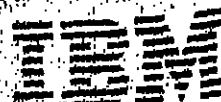
IBM United Kingdom Laboratories Limited are looking for a Technical Author, male or female, to join its Technical Documentation department. The work involves the preparation of user and maintenance manuals for the range of program products under development in our Laboratories at Hursley Park, near Winchester, Hants.

You will probably be either: an experienced technical author who has worked on complex programming systems or a data processing professional with an aptitude for communicating in writing.

You must have the ability to negotiate with people at all levels and preferably have a degree in Information Science or a similar qualification.

An attractive salary will be negotiated in line with experience and potential. As well as a substantial employee benefits package which includes a non-contributory pension scheme and free life assurance, we offer generous assistance with relocation expenses where appropriate, and variable working hours.

If you are interested, please write giving details of education and previous experience, to Mike Shute, Personnel Officer, IBM United Kingdom Laboratories Limited, Hursley Park, Winchester, Hants, quoting ref.



consultants and programmers - Manchester

consultants	to £9,000	senior programmers	to £6,000
project consultants	to £7,000	programmers	to £5,000

Hoskyns Northern Division has been in operation now for three years. In that time we have trebled in size and can point to an outstanding record of success in a wide range of projects on a wide range of hardware. In the coming year we plan to implement a further expansion programme to build on this success. To support our expansion we need further professional staff with practical experience of designing, writing and implementing commercial on-line systems, both on mainframe and mini-computers.

Opportunities exist at all levels for:

- Consultants:** to evaluate requirements and advise clients on computer strategy; to manage projects from design to implementation. Specific experience of manufacturing industry would be useful.
- Project Consultants:** to be responsible for the design of advanced systems and to manage programming teams writing those systems. Specific DBMS and TP Monitor experience is required.
- Senior Programmers:** with some supervisory experience and in-depth programming experience of on-line systems.
- Programmers:** with at least one year's experience of a commercial programming language.

As one of the largest computer services companies in the country Hoskyns offers a wide choice of career opportunities and locations - we have offices in most parts of the UK and our International Division has worked in most of the European, Middle Eastern, and Commonwealth countries.

Conditions of service are commensurate with what you would expect from a major company in this field - relocation expenses would be paid where appropriate. Although our current offices are in the centre of Manchester we expect to move to Sale in the near future as part of our expansion plan.

If you would be interested in discussing the opportunities with us we would like to hear from you. Write with full career and salary details to:

J. M. Burns
John Hoskyns and Company Limited, Byrom House, Quay Street, Manchester M3 3JD
or telephone: 061-834 4235.

hoskyns

A systems company with over 500 professional staff,
13 computer centres and 14 years of continuous growth

**An unusually interesting position for a person with
an analytical background**

INTERNATIONAL OPERATIONS PLANNING

Salary: Circa £5,600 plus mortgage subsidy

Home base: Very attractive part of Southern England

Our client is establishing a number of international computer sites. They now want to meet someone who can help plan the local computer environment for these sites. By this we mean the physical environment of the computer room, the staffing requirements and also the implication of future business expansion on these two aspects.

The selected applicant must be capable of assisting local staff at the international sites and advising their management. Therefore, a preparedness to get on with people of diverse nationalities is very important. We are looking for someone who will have the ability to "think in the right way", by this we mean analytically, and who will have probably worked in a problem solving environment for at least two years.

The position will require some overseas travel, occasionally at short notice, and when away from the home base, the applicant will be expected to make decisions without reference to a superior. Therefore, you must have the confidence to be able to do this.

The equipment being installed is in the Burroughs B.1700/1800 range, and some knowledge of this equipment would be advantageous. However, this is not the most important aspect; more important is a genuine enthusiasm, flexibility and an ability to persuade people to do things quickly and accurately.

If the position interests you then we would like to meet you as soon as possible.

Please apply to John Goldsmith, Ref. 1648/CW.



WE ARE ALWAYS INTERESTED IN HELPING YOU WITH YOUR CAREER
John Goldsmith (Computer Recruitment) Ltd., 16, Buckingham Palace Road, London, S.W.1
Tel: 01-828 6356 - 24 hour answerphone service.

JOHN GOLDSMITH (Computer Recruitment) Ltd.

هذا من اجل

Senior Systems Programmer

C.LONDON

£6,500 + Benefits

Our client, a large service organisation, is seeking a Senior Systems Programmer to assist with the generation and maintenance of the operating system, liaise with the manufacturer, advise and assist users, write and document software interfaces, provide support for computer operations and generally assist the Systems Programming Manager. An IBM 370/158 is in use.

Applicants with at least 2 years experience of IBM ASSEMBLER should be familiar with OS/VS 2, Release 1 or Release 2. Supervisory experience and some knowledge of TP, HASP, Data Base Management Systems, SYSGEN work or VSPC would be an advantage.

If you have the necessary qualifications and would like to be considered for this position, please call in or phone for an Application Form. Ames Personnel, Suite 14, Dryden Chambers, 119 Oxford Street, London W1R 1PA.

AMES PERSONNEL 01-434 1106

Software salesmen + Technical support staff

Due to our continued expansion in the fastest growing area in DP, we need a further SOFTWARE SALESMAN to cover the south of England.

The successful applicant will know the IBM 360/370 market place, and will have initiative in an area that will provide good rewards.

In addition UCC is looking for TECHNICAL SUPPORT staff to support our customers and marketing staff in maintaining some of the world's leading operating software products. These include UCC ONE (Tape Management Software) and UCC TWO (DOS under OS), which have consistently been voted into the Datapro Roll of Honour. Experience required from our technical staff is a good knowledge of Assembler and preferably experience as a systems programmer.

These vacancies are based in the Norbury office, and if you are interested please write or phone David McBrean.

UCC UNIVERSITY COMPUTING COMPANY
Software Products International

University Computing Company (Great Britain) Limited
1258 London Road, Norbury London SW16 4XN. Tel: 01-679 1766.

Norfolk Chief Programmer

c. £6000

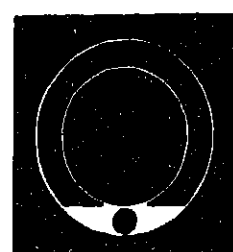
We are a privately-owned, leading provincial newspaper group. Our modern head office is situated in the heart of Norwich, an exceptionally pleasant forward looking City, close to the Norfolk Broads and within 30 minutes of a variety of resorts with golden beaches.

We currently use twin UNIVAC 9480's with communications equipment to support our real time advertising, accounts and text processing systems.

The chief programmer we are seeking will be an experienced UNIVAC 9480 programmer capable of motivating, training and

providing technical expertise for a small team of programmers. The successful applicant will participate in profit sharing, pension and life assurance schemes, canteen and social club facilities and will have the opportunity to influence the Company's view on future computer usage. Assistance is given with relocation expenses where applicable.

Application should be made in writing to Personnel Officer, Eastern Counties Newspapers Ltd, Prospect House, Raven Road, Norwich, NR1 1RS. Telephone (0603) 26311.



IRANIAN NATIONAL BLOOD TRANSFUSION
SERVICE TEHRAN

PROJECT LEADER

(approx. £19,000 p.a. + termination bonus and car)

for implementation of mini-based interactive computer systems to support the operational functions, planning/budgeting tasks and routine administration of the Iranian National Blood Transfusion Service.

He/she will be expected to make a working contribution to the detailed design, development and implementation of the systems, to participate in the selection of project staff (expatriate and Iranian) and to play an active part in the on-the-job training of Iranian project staff. He/she will have to co-operate closely with the medical and management staff of the INBTS who are actively involved in the planning for systems automation.

Applicants should have a relevant university degree and at least ten years practical experience of systems design/implementation and programming (in more than one language, including Assembler or equivalent), using several different makes of hardware on a variety of applications. They should have managed projects and project teams successfully; in recent years they should have worked on the design and implementation of mini-based interactive system(s) in a senior capacity.

The Project Leader who will report to the Deputy Director of the INBTS, will be appointed for a minimum of 18 months at a salary of 2,500,000 Rials p.a. (which includes a housing allowance). Additional benefits include termination bonus, car provided, 6 weeks paid leave p.a. and generous relocation allowance.

Initial interviews will be held in London during the first half of July; shortlisted candidates will be asked to attend final interviews in Paris between 23rd-29th July.

Applications, with curricula vitae, should be addressed to Box No. 1957, Computer Weekly, Dorset House, Stamford St., LONDON SE1 9LU.

MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

PROGRAMMING MANAGEMENT

BRACKNELL

To £8,250

Our Client is seeking an experienced D.P. professional who has the ability to manage, motivate and train staff under their direction.

The installation houses a Honeywell 2000 operating under OS 2000 with Redifon key to disc equipment currently being used for data preparation. Plans to upgrade the hardware and develop on-line applications are well advanced.

Suitable candidates will have a programming background with knowledge of COBOL and Easycode. Ideally applicants will have worked to good standards and will be keen to train and motivate junior staff.

In addition to a competitive salary the Company has a pleasant working environment and good conditions of employment. Assistance with relocation expenses will be available where necessary.

Ref. W1/0806

24-hr. answering service
Please telephone for a confidential
discussion or write to:
30 Fleet Street London EC4Y 1AA
01-353 0981

PROGRAMMERS

SOLIHULL
Up to £4337*

Come and help us meet the business needs of the next decade.

On our new ICL 2970 - initially - we will give you any conversion training necessary.

Bring your enthusiasm and a minimum of 18 months' experience to help us solve our problems of developing existing systems. These already use a network of 300 V.D.U.'s and remote printing.

On line development of programs through MAC terminals.

Logical Data Analysis techniques are now being used to determine the form of our data bases(s).

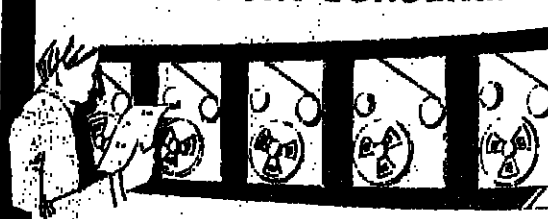
The starting salary will be in the range £2858 to £3918 p.a. according to experience.

* This figure includes Phases I & II Pay Policy Supplement which are not payable in addition to the salary range quoted. (Phase III is currently being negotiated). There are also other benefits usually associated with a large progressive industry.

For further details, please ring Peter Garrett on 021-705 6888, or, 8295, or apply in writing to: Senior Personnel Officer, (H.Q. & Marketing), West Midlands Gas, What Cane, Solihull, West Midlands B91 2JP.

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QUADRANT RECRUITMENT LIMITED

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Sheffield - Bank House, Queen Street, Sheffield, S1 1UF. Tel: 0742 738794 (Bill Baker).

STRATHCLYDE REGIONAL COUNCIL

GLASGOW SUB-REGION

COMPUTER (HEADQUARTERS) DEPARTMENT

PROJECT LEADER

May House, Ardorn Cross, Glasgow

Salary Scale - S07 - £558.3 £606.3 plus supplement of £620 per annum

The successful applicant will be responsible for a small team of FORTRAN Analysts/Programmers providing a service to Technical Departments in the use of Engineering, Scientific and Statistical packages utilizing in-house time sharing facilities. Applicants must have a Science or Engineering degree plus extensive FORTRAN experience and experience in the implementation and use of similar packages.

Application forms may be obtained from The Assistant Director of Manpower Services, 21 Gordon Street, Glasgow G1 3PB, to whom completed forms, quoting Ref. 0391, should be returned by 28th June, 1978.

Dr M. D. McCulloch
Director of Manpower Services

COMPUTER PROGRAMMERS

£4,500-£5,500

required with Commercial Systems. ASSEMBLER COBOL, experience.

To join small enthusiastic comp. manufacturing company.

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0442 65295

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Bank Court

Mariowes, Hemel Hempstead, Herts.

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Senior Systems Analysts

Self motivated, with broad commercial experience and able to control projects. Salary to £6,500 (subject to review). Ref. 1850/1.

Senior Programmers

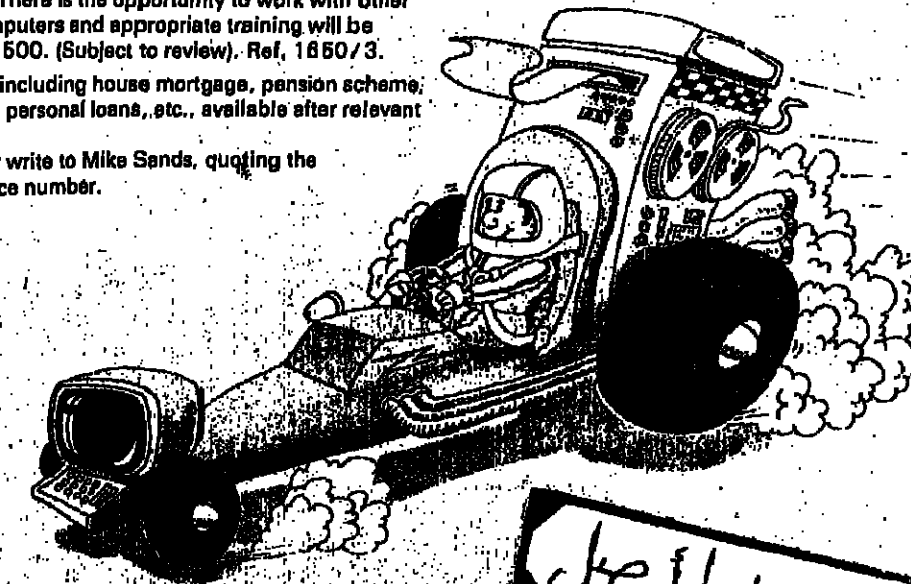
At least four years' experience with IBM 370 and COBOL knowledge. Structured programming and database techniques are used and if necessary training will be given in these. Salary to £5,500. (Subject to review). Ref. 1850/2.

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Programmers with PDP11 experience are needed to work on a variety of projects. There is the opportunity to work with other mini and micro computers and appropriate training will be given. Salary to £5,500. (Subject to review). Ref. 1850/3.

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Centre file



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University of Birmingham

COMPUTER CENTRE

Adviser for Interactive Computing

The Centre's provision of a wide range of local and remote computing facilities is now being extended by the installation of a large, dedicated interactive system for both teaching and research.

A new post of Computer Officer, tenable for two years from 1st October, 1978, has been created in the User Services Group to develop the use within the University of:

Computer Aided Instruction and Computer Aided Learning techniques.

Applications are invited from graduates with computing experience, especially in the area of simulation and modelling techniques. A higher degree is desirable, but clear evidence of previous work successfully completed is equally important.

Starting salary, according to age, qualifications and experience, will be on the scale:

£3,189-£6,282-£8,178 (under review).

Further information from the Assistant Registrar, Science and Engineering, University of Birmingham, P.O. Box 363, Birmingham B15 2TT, to whom applications (three copies) including full curriculum vitae and naming three referees, should be sent by 3rd July, 1978.

Please quote ref. CW24.

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Control Dataset is a joint venture between Control Data Limited and International Computers Limited. It is the United Kingdom's largest computer supplies company, manufacturing and marketing paper products, ribbons, furniture and magnetic media to a wide variety of computer users. Annual turnover is in eight figures.

In order to support its position as market leader the Company is currently seeking men or women to fill two vacant positions in its Product Management team.

PRODUCT MANAGER
An experienced Product Manager is required for this position which carries responsibility for the Company's major product lines (Magnetic tape and disc). Essential background must include at least four years in marketing consumer goods, education to degree level and preferably an understanding of the computer industry. Starting salary will be attractive and there is a bonus payable against defined objectives. A company car is provided.

ASSISTANT PRODUCT MANAGER
For this position we are seeking a candidate who has substantial theoretical training (perhaps through studies for an MBA or degree in Business Studies) with a marketing emphasis allied to practical experience in systems analysis or computer support activities. The successful candidate will be responsible for a defined sector of our product range, initially under close supervision, and will receive necessary additional training. There is a clear opportunity for personal development in this marketing-oriented organization. Starting salary for the position will be according to qualifications and experience.

Both these posts are based in Letchworth (relocation to Stevenage early in 1978), and relocation assistance will be provided where appropriate. Other benefits are those you would expect of a major employer in the computer industry. Please write, giving brief personal career details, to:

Mr. D. First-Clerk
Personnel Manager
Control Dataset Limited
Annet House, Broadway
Letchworth, Herts SG8 3BX



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FOR REAL-TIME PROJECT
Salary £24,400

We are looking for programmers with more than 1 year's software experience to join our Software development team. We use Univac hardware with in-house transaction and database software for our Real-time Patient Care System.

Pleasant working conditions and flexible scheme. For further information and application form write to: Mr. D. Winkler, Programming Manager, or Mrs. J. Horne, Administrative Computer Services Unit, Queen Elizabeth Hospital, Edgbaston, Birmingham B15 2TH. 021-472-1372 ext. 280.

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In the UK Applicon's potential is impressive and this has led to the recruitment for 2 Systems Engineers of the highest quality. One with STRONG ELECTRONICS EXPERIENCE IN PCB DESIGN and the second with a CAD/CAM/3D ORIENTATION.

QUALIFICATIONS:
1. Strong personal motivation and enthusiasm, and communication skills.
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3. Candidates for the CAD/CAM/3D position will be experienced in this field, may well be Ph.D.s and have a background including NC and FINITE ELEMENT ANALYSIS.
4. For both positions mini computer and Fortran experience is important.

Please send your career details direct to DPSC Group, alternatively telephone for a confidential discussion.

DPSC GROUP LIMITED, CROWN HOUSE, MORDEN, SURREY SM4 5EU. Tel: No: 01-540 8311.

Ref: CW 829



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ARE YOU INTERESTED IN FUTURE CAREER DEVELOPMENT?

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RPG2 EXPERIENCE AND
ICL 2903 SOFTWARE BACKGROUND

COULD YOU WORK IN A SMALL ESTABLISHED TEAM? WITH THE

ABILITY TO WORK ON YOUR OWN INITIATIVE?

LOOK, IF THE ANSWERS TO THESE QUESTIONS IS YES THEN

LET US KNOW, GIVE US A RING

We are a major international company providing Car Phone, Pocket Bleepers and Medical Despatching services throughout the UK and overseas.

Our present 2903 with EDS300s will shortly be enhanced to 40K 2904 with 800 lpm printer and VDU's. Future plans include an independent computer division.

This is an ideal opportunity for career development and to make a positive contribution to the ambitious plans of this go-ahead company. Benefits include bonus scheme, 4 weeks' holiday, pension scheme and further training into online database and new languages.

Please apply to:
Mr. D. Winkler, Programming Manager
or Mrs. J. Horne, Administrative Computer Services Unit
Queen Elizabeth Hospital, Edgbaston, Birmingham B15 2TH. 021-472-1372 ext. 280.



Real Time Systems & Software Designers

to meet the needs of
the 1980s
in computer-controlled
communications

At Boston, Nottingham, Plessey is building a team to design a new range of processor controlled switching and office automation systems offering a wide range of fascinating applications. The Company has a notable export record and aims to increase its influence in world telecommunications markets.

Real Time Systems and Software Designers are needed to come into this growth activity and to enjoy

the scope for career progress and job satisfaction. You would be actively involved in contributing to system philosophy and would undertake the design and implementation of digital systems. Candidates should have experience of real time programming and design or micro-computer hardware experience.

Salaries, up to £6,500, will be negotiated in line with experience and qualifications. The Company will assist with relocation costs and may be able to help in obtaining a mortgage in this low cost housing area. Applications are invited from men and women.

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& Executive
Recruitment

Please ring or write for details:
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Nottingham.
Tel: Nottingham (0602) 49781.



COMPUTER MAINTENANCE ENGINEER

The Central Electricity Generating Board is looking for a suitable person to join the staff at HEYSHAM POWER STATION which is under construction to the south of Morecambe Bay, Lancashire.

A computer maintenance engineer is required for the power station control equipment. This equipment comprises 3 Ferranti Argus 500 computers on process control data main analysis and recording and 2 off-line PDP 11 based data processors.

This post is for a day work engineer to provide back-up service to a team of shift engineers on this equipment.

Applicants should possess suitable qualifications and must have sound experience of digital computer based control systems. The ability to read single diagnostic maintenance programmes will be necessary although training can be provided.

Salary will be within one of the following ranges depending on qualifications and experience: £5485-£7221 p.a. or £4191-£5175 p.a.

Applications in writing, from either sex, giving details of age, experience, qualifications, etc., to the Personnel Manager, C.E.G.B., Europa House, Bird Hall Lane, Chadda Heath, Stockport, Cheshire SK2 0XA to arrive no later than 3 July, 1978. Please quote vacancy number 514/CW.

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WE REQUIRE
-- Proven record of computer sales
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WE OFFER
-- An outstanding career
-- A high basic salary plus commission and car.
-- Located at Reading
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SUPPORT ANALYSTS

are needed to complement our highly professional team. This will involve both pre and post sales effort and will require understanding of problems within all our application areas. Experience of matrix computing methods and signal processing will be an advantage.

Please write in confidence to:
Steve Markham
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(0734) 50181

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(Ref. M.18) Salary up to £5,600

If you are an experienced programmer ready to take responsibility for others, why not come and join us at Lambeth?

In addition to managing a team of programmers you will also assist in the design of systems and the preparation of program specifications. Computing at Lambeth is currently based on twin ICL 1900's supporting a variety of batch and on-line systems.

The computer centre is located close to tube and main-line stations as well as major bus routes. Other benefits include flexible hours, subsidised canteen, generous holidays and assistance with relocation expenses in some cases.

Further information or application form obtainable from the Personnel Officer, Directorate of Management Services, London Borough of Lambeth, Lambeth House, Brixton, S.W.2, or telephone 01-274 7722. Ext. 696.

LAMBETH

Ludbrook

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This position will be of particular interest to a dynamic young man or woman with a flair for sales applications manager software. The successful applicant will play an active role in our development programme using all three of these languages. Training will be given where necessary.

Our salaries are competitive and we offer 22 days annual holiday plus 3 statutory days, and a subsidised dining room in our modern offices situated in the centre of Market Harborough.

Please telephone Market Harborough 4771 or write for an application form to:
Mrs. J. M. Freer, Employment Officer,
Golden Wonder Limited,
Edinburgh House, Abbey Street, Market Harborough, Leicestershire.

Write to:
Mr. G. W. Ludbrook,
Ludbrook Management Services,
1 Galloway Gate,
Luton,
Telephone Luton 0453 52314

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The installation is easily accessible by public transport and a holiday bonus is paid.

Ref. RJ. 237.

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Experienced Computer Service Engineers

We also have a few vacancies for experienced computer Service Engineers in Birmingham, Glasgow, Manchester, London and the Home Counties. For all the above vacancies please write or phone Janet Field at the address below -- reversing the charges if you wish.

Data General

Data General Limited, Watway House, 320 Rutledge Road East, Greenford, Middlesex UB6 9BJ. Tel: 01-578 9231.

Computer Programmer

Golden Wonder Limited, a member of the Imperial Foods Group, are now seeking a Computer Programmer to fill a vacancy created by internal promotion.

The present configuration is an ICL 64K/1902T with discs, tapes and VDU's. This will shortly be upgraded to 64K with 7502 systems supporting further VDU's. Applicants should have COBOL programming experience.

We also make extensive use of the FILETAB language and develop on-line systems using applications manager software. The successful applicant will play an active role in our development programme using all three of these languages. Training will be given where necessary.

Our salaries are competitive and we offer 22 days annual holiday plus 3 statutory days, and a subsidised dining room in our modern offices situated in the centre of Market Harborough.

Please telephone Market Harborough 4771 or write for an application form to:
Mrs. J. M. Freer, Employment Officer,
Golden Wonder Limited,
Edinburgh House, Abbey Street, Market Harborough, Leicestershire.



Jeffrey 15/78

B

LEEDS

PROJECT LEADERS

£4,500-£6,000 + Profit Share
Three years' commercial experience with a sound background of ASSEMBLER and high level languages. To be involved in full development from Systems Analysis through programming to implementation.

PROGRAMMERS

£3,500-£5,000 + Profit Share
COBOL experience and ASSEMBLER an advantage. Software house environment. Rapid progression to Project Leader level expected.

SYSTEMS ANALYST

£5,500
Level 68/20. Batch/On-line. Must have 3/4 years' experience. Excellent prospects in fast growing bureau environment. Bureau experience desirable but not essential.

PROGRAMMERS

£5,000
ASSEMBLER preferably on mini but IBM considered. Excellent opportunities to expand with a fast growing software house. Must have 4 commercial applications background.

**73/75 ALBION STREET
0532-36622**

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SYSTEMS CONSULTANT

£7,500 + car
To assist in the implementation of all manufacturing systems for a number of medium sized engineering companies. Must have good production control experience.

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Major training Company requires well experienced COBOL programmer. Preferably on IBM and/or ICL kit. Must be able to communicate effectively. Good prospects.

PROGRAMMER

£3,500-£6,000
Experienced IBM COBOL programmer for work on a variety of installations in the North West. General commercial experience required. Must be mobile.

SYSTEMS PROGRAMMER

£4,900
Working on ICL 1900, but shortly introducing ICL 2800. Must have COBOL experience. Knowledge of stock and production control an advantage.

**65 PRINCESS STREET
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£5,300
With two years' scientific applications on minis. ASSEMBLER, FORTRAN, CORAL, RTL 2, for manufacturing environment. Small departments. Excellent promotion prospects. Relocation.

PROGRAMMER

£4,200
COBOL programmer. 1 1/2 years' experience commercial applications on 1900 series being updated. Bureau environment. On line. Excellent prospects.

ANALYST/ PROGRAMMER

£5,400
COBOL ICL series. Database environment. Two years' commercial experience. User liaison. On-line/batch installation. Excellent prospects in forward looking company.

PROJECT LEADER

£6,500 + Review July
With at least five years' experience in D.P. coming through programming and Systems Analyst rank. Self-motivation and staff control a must. Able to converse at all levels. A demanding position in a forward looking Bureau environment.

**54/56 FARGATE
0742 738783**

IF THE JOB YOU REQUIRE IS NOT HERE — PLEASE RING OR CALL IN AT ANY OF THE ABOVE BRANCHES — WE ARE HERE TO HELP YOU IN 1978.

BERTRAM COMPUTER PERSONNEL

LEEDS
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0742 738783

MANCHESTER
061-236 4593

BIRMINGHAM
021-643 4433

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SYSTEMS DESIGNER/ PROJECT LEADER

BRISTOL T/P RESERVATION SYSTEM CIRCA £7,000

THE COMPANY: PSL is a systems house with an enviable record of growth. We supply turnkey computer systems throughout the U.K. and Europe, currently concentrating on Honeywell Level 6 mini-computers.

THE POSITION: PSL now needs a highly talented systems designer to form the nucleus of its Transaction Processing Systems group, based in Bristol. Experience of commercial on-line systems using high level languages is essential. Initially he or she will play a key role in the development and implementation of a highly interesting reservation system.

THE FUTURE: The person appointed must have the ability to motivate and manage a team of up to seven Analysts/Programmers, and with the continued expansion of the Company, promotion prospects to more senior positions are excellent.

In the first instance please contact ANDREW SANSOM on 01-878 7861.

PSL

328 Upper Richmond Road West
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Telephone 01-878 7861

DOUGLAS

SYSTEMS ANALYSTS PROGRAMMERS

The Douglas Group comprises of a number of Companies within the Construction Industry at home and abroad. A powerful replacement computer will be installed in 1978 to handle several new terminal systems for which experienced Systems Analysts are now sought.

PROGRAMMERS with at least three years' experience may move into Systems Analysts after a short qualification period. There are some vacancies to suit applicants who may wish to make this transition.

Both positions will appeal to applicants who wish to develop their careers using the latest techniques.

Send details of career to: Mr J. S. Allen, Data Processing Manager, R.M. Douglas Construction Ltd., 325 George Road, Farnborough, Hampshire GU14 7JZ. Telephone 0246 488146/488147.

Inner London Education Authority

ILEA Schools and College Computer Service Supervisor

Salary range: £4,442.50 inclusive of £806.50 of London Weighting and Pension (all supplements)

This post is controlled by the ILEA to the City of London Polytechnic Computer Centre. The person appointed will work to the computer supervisor, of a computer service to 160 secondary schools and some 30 colleges of further education. Interactive facilities are provided on a HP2000 and a Syntex 6000 which will shortly be enhanced to support courier service for batch processing. There is also a team of support staff working in the supervisor.

The Authority is committed to developing computer education in its schools and colleges and the person appointed will have an interest in all aspects of this development.

Application forms and further details from: The Education Officer, EO/East: 2A/1; Room 387, The County Hall, London, SE1 7PB.

Please enclose a large stamped addressed envelope for reply. Completed forms to be returned not later than Friday, July 1, 1978.

"Here Again, Are the Main Points of the News..."

A widespread search is still continuing for people to fill the following well-paid opportunities.

Operations

SYSTEM 3
SYSTEM 4
PDP11/70
BURROUGHS 370
1900

Greenford
Hayes
WC1, N1
Kew
Brentford, Hounslow
Edgware

Programming

ASSEMBLER

W1, Camberley, Borehamwood, Burton-on-Trent, Horley, Walton-on-Thames, Romford/Chatham, Whyteleafe, Dagenham, Brentwood.

COBOL

E7, SE1, City, Hayes, Morden, Burton-on-Trent, Bracknell, Stevenage, Dagenham, Whyteleafe, Edgware, Romford, Harlow, Horley, Greenford, Basildon, Chelmsford, Brentwood, Harrow.

PL1

City, Guildford, Croydon, Harmondsworth, Chatham, Horley, Burton-on-Trent, City, Kingston, Cambridge, Bury St. Edmunds, Colchester, Crawley, Wembley, Greenford, City, Horley, Essex.

FORTRAN

And there's plenty more where these came from!

Analysis

E7, Colnbrook, Greenford, Dagenham, Stevenage, Harrow, City, Cambridge, Crawley, Whyteleafe, Richmond, Harlow, Rayleigh.

Varied Applications — Trainee to Senior.

Sales

Packages, Minis and Mainframes to be sold throughout U.K.

"A deep depression covering the country will move away rapidly on ringing 283 3237"

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01-283 3237

Traffic Control Traffic Engineer/ Technician — P&TOII

£4326-£5739

Applications are invited for the pensionable post of Systems Engineer (Hardware) P&TOII in the Department of the Environment (NI) Urban Traffic Control Team which is presently being planned for Belfast.

Applicants should have held a position of responsibility involved in the production, installation or maintenance of equipment in the field of Data Transmission, Line Communication, Electronics or Computer Hardware. They must also have obtained one of the following qualifications —

(a) a Degree in Civil, Mechanical or Electrical Engineering, plus 2 years' post-qualification experience.

OR

(b) an HNC/HND in Civil, Mechanical or Electrical Engineering or equivalent, plus 7 years' post-qualification experience. Exceptionally candidates with an appropriate ONC/OND and at least 10 years' post-qualification experience may be considered.

The successful applicant will be required to advise on all technical matters associated with the system's hardware and to liaise with staff responsible for the Software and Traffic Engineering.

Starting salary which is on the scale £4326-£5739 will be related to qualifications and experience.

Please write or telephone for an application form, quoting job reference SB 172/78/CV, to the Civil Service Commission, Rosapark House, Upper Newton Road, Belfast BT4 3NR (telephone Dundonald 4885 ext. 305). Completed forms must be returned to arrive not later than 29th June, 1978.

**NORTHERN IRELAND
CIVIL SERVICE**

SENIOR ANALYST/ PROGRAMMER

The Company is a leading manufacturer of electrical appliances with 1200 employees and two factory locations. It has a reputation in requirements and wide range of manufacturing processes, control of materials and stock involves computer systems, which are likely to be further extended to improve production efficiency.

The person appointed will play a key role in monitoring and extending computer systems. He or she will be in charge of an IBM Systems 3 Model 8 computer installation, and will be involved in varied commercial applications and in preparing a new order entry/invoice system and a much more informative payroll. Assisted by two trainees and the punch room staff, the Senior Analyst will be responsible for RPL programming and IPICS for the two factories.

Where necessary, training will supplement experience, and prospects of promotion are good. The salary will be in the range £4000-£5000, according to age and experience.

Benefits of working for the Company include, subsidised restaurant, 4 weeks holidays, pension scheme, woodland location with on-site sports and social facilities and BUPA membership.

Write with full details of experience and salary required, or write/phone for an application form to:

Personnel Manager
Goblin (BVC) Limited
Leatherhead, Surrey
Ashstead 78121

GOBLIN BVC

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IBM 370 APPLICATIONS PROGRAMMERS

We are a leading Independent Software Company situated in North Cheshire, operating batch processing work on an IBM 370/115 miniframe computer and supporting three IBM 3700 direct order entry systems, for the Greenall Whitley Group.

We require two applications programmers with at least two to three years' programming experience, preferably in PL1, to be involved in developing new systems under the guidance of our senior programmer. They will also be required to train as support programmers for the group 3700 system and any knowledge of this programming language would be an advantage.

Salary is negotiable and company benefits include a non-contributory pension scheme, a profit share scheme, 4 weeks annual holiday and a good working environment in a new computer block.

Application forms may be obtained from:

The Company Secretary
GILBERT & JOHN GREENALL LTD.
P.O. Box 2, Cusworth District
Warrington, Cheshire
Telephone: Warrington 50111

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We at OCC have been recruitment consultants to the computer industry at home and abroad for over seven years, and continued growth means we need to recruit two additional consultants. You need self-motivation, the ability to deal convincingly with candidates and clients at all levels, and the ability to express yourself well in speech and writing. Your past experience is less important and could have been in systems support, consultancy or personnel.

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If you are interested in the opportunities we offer, please contact me, Neville John, to discuss matters further. Day telephone: 01-242 9356. Evenings or weekends Farnborough (Kent) 52017. Alternatively, to find out more about us and meet some of our consultants, informally, come to our offices at the times shown opposite.

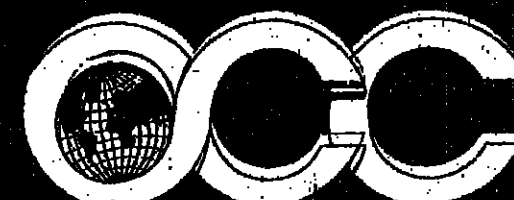
INFORMAL DISCUSSIONS:

Monday, 17th July
Tuesday, 18th July
Wednesday, 19th July
up to 7 p.m.



Members of
Computing
Services
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01-242 9356
Telex 21120



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SCANDINAVIAN BANK

requires:

**EXPERIENCED ANALYSTS
AND PROGRAMMERS**

Due to the continued expansion of the Bank and its DP activities the following additional staff are required:

SYSTEMS ANALYSTS
With at least two years' experience in a banking environment. Experience of on-line systems an added advantage.

COBOL PROGRAMMERS
With two years' programming experience on an IBM 370 under DOS/VS and POWER/VS. Knowledge of Assembler and/or CICS/VS an added advantage.

The Bank is currently developing a sophisticated on-line/real time system and the new entrants will form part of the development team.

Attractive salaries commensurate with experience. Fringe benefits include low interest mortgage scheme, non-contributory pension scheme, luncheon vouchers and season ticket.

Apply in writing quoting experience to:

DATA PROCESSING MANAGER, SCANDINAVIAN BANK LIMITED
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TELEPHONE 01-749 0465

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Lucas World Service require programmers, with at least two years COBOL or ASSEMBLER experience, to work in the centre of Birmingham.

The successful applicants would be required to work on Order Processing and ancillary systems currently running in real-time on two UNIVAC 418 111 but to be replaced by a large distributed network in two years. Experience with mini computers would be an advantage but not essential.

Full details of qualifications and experience should be forwarded to:

Personnel Manager,
Lucas Service UK Limited,
Plume Street,
Aston,
Birmingham B6 7RS.

Lucas Service

occ computer personnel limited

Financial Systems

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International consultancy — Opportunity for overseas travel — Turnkey Mini and Mainframe systems.

Already acknowledged as one of the market leaders in the area of Financial Systems development, our client, a major UK based International Consultancy Group, now wishes to appoint a number of additional personnel for new projects both in the UK and overseas. The Finance Division is primarily concerned with the development and implementation of Business and Financial Systems, many of which involve Real Time, Communications or Network Processing.

Systems Consultants £6,000 - £8,500

Systems Consultants should have at least 4 years' Systems experience, and a knowledge of programming. Specific experience should include some involvement in one of the areas listed above. Candidates should have either Project Leader experience or potential to develop into this role in due course.

Software Consultants £6,000 - £8,500

Software Consultants should have experience of Real Time mini computer software in any application area. The essential requirement is the ability to design/enhance and implement complex systems software.

Programming Consultants £4,500 - £7,000

Programming Consultants should have a minimum of 2 years' programming experience. Mini experience is of particular interest as is experience of Financial or Accounting systems. For some projects, IBM PL1/CICS would also be useful.

To apply for these positions, or for further information, please contact
Roger Allington on 01-242 9356 (day) or Berkhamsted (04427) 2299
(evenings/weekends). Ref: 310F/CW/RA.

16 Bedford Row
London WC1R 4EB
01-242 9356
Telex 21120



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SCIENCE RESEARCH COUNCIL APPLETON LABORATORY REQUIRES A SCIENTIFIC OFFICER

To work at the Astrophysics Research Division at Culham on a project to study the X-ray Spectra from Solar Flares. The successful candidate will develop software to run on a PDP11 Computer System for the analysis of data from a satellite that will be launched in October 1979 and should be prepared to spend periods abroad at the Satellite Operations Centre near Washington, D.C., U.S.A.

Applicants for this post should have a degree or equivalent qualification in Physics, Mathematics or Computer Science and some experience of FORTRAN Programming. A knowledge of Mini-Computers would be an additional advantage. Salary: on the scale £2,839 p.a. to £4,415 p.a., the exact step depending on qualifications and experience.

Non-contributory pension scheme

Please write for an application form to: The Secretary, Science Research Council, Appleton Laboratory, Ditcher Park, Slough, SL3 8JX, or Telephone 0494 41222. Closing date: July 6, 1978.

LIVERPOOL POLYTECHNIC DEPARTMENT OF MATHEMATICS PRINCIPLE LECTURER COMPUTER SERVICES

Applicants should have a sound knowledge and relevant experience of computer services development and management in the educational context. It is anticipated that this post will eventually be incorporated in a separate Computer Services Unit, the principal role being to examine needs and make recommendations regarding future provision. Salary scale: £7047-£8844 p.a. Application forms and further particulars are available from the Personnel Office, Liverpool Polytechnic, Richmond House, 1, Bedford Place, Liverpool L3 9JX. Tel: 051-227-8881. Ed. 100. Closing date: 15th June 1978. Closing time: 12.00 noon. Applications should be sent to the Personnel Office, Liverpool Polytechnic, Richmond House, 1, Bedford Place, Liverpool L3 9JX. Tel: 051-227-8881. Ed. 100.

UNIVERSITY OF SURREY COMPUTING UNIT SYSTEMS PROGRAMMER/ ANALYST

University of Surrey Computer Unit requires a Systems Programmer/Analyst to develop and maintain the University's computer systems. The successful candidate will be responsible for the design, development, testing and documentation of computer programs. Salary: £6,000 - £8,500 p.a. Application forms and further particulars are available from the Personnel Office, University of Surrey, Guildford, Surrey GU1 2XH. Tel: 0424 873111. Ed. 100. Closing date: 15th June 1978. Closing time: 12.00 noon. Applications should be sent to the Personnel Office, University of Surrey, Guildford, Surrey GU1 2XH. Tel: 0424 873111. Ed. 100.

PROGRAMMERS & ANALYST, PROGRAMMERS who want to move to SYSTEMS/ ANALYSIS

Starting salary up to £5600, around three years mainframe programming experience required. Computer Science graduates would be considered at an appropriately lower salary. (Ref: 886W)

COBOL PROGRAMMERS who want to learn DATABASE & TP TECHNIQUES

Starting salary up to £5600, at least two years programming experience required, including COBOL. (Ref: 886W)

PROGRAMMERS who want to move to COBOL

Starting salary up to £5600, at least two years' mainframe experience required (no scientific), any language, any hardware. (Ref: 886W)

We are recruiting for clients who have a large installation in the West End of London, with plenty of development work, using database and TP techniques. Good training and career prospects, excellent working conditions (new offices). Please ring us in confidence, quoting the appropriate reference, or leave a message on our answering machine after hours.

Tel: 01-637 5796



COMPUTER OPERATORS & TRAINEES

Cardiff up to £4000

In readiness for our move to 24-hour, 3-shift operating, we need to recruit a number of experienced and trainee operators for our computer centre. The system comprises dual B3501 and B3771 processors with a combined memory of 550 KB and sharing a total disk capacity of 900MB. There will be involvement in a wide range of both routine and special applications including a Real Time Stores System.

Applicants for the posts of operator should ideally have a minimum of 18 months' relevant operating experience on a large commercial installation.

We also have vacancies for Trainee Operators who are at least 18 years of age and will have either limited experience or are interested in starting a career within computing. Salary for this position will be from £2550 depending on previous experience.

Career progression, depending on the individual's ability, is available through Operations Development, Programming and Management.

For further information and an application form please write to: Dave Prestwich, Computer Operations Officer, Wales Gas, Snelling House, Bute Terrace, Cardiff, or ring Cardiff 33131, extension 3278.

WALES GAS
NWY CYMRU

oxford polytechnic

Computer Centre
Chief Programmer
(Salary on PO1 scale up to £6000)
An experienced programmer is required to take charge of the Polytechnic's computer system. The successful candidate will be responsible for the design, development, testing and documentation of computer programs. Salary: £6,000 - £8,500 p.a. Application forms and further particulars are available from the Personnel Office, Oxford Polytechnic, Oxford OX1 2JF. Tel: 01865 272111. Ed. 100. Closing date: 15th June 1978. Closing time: 12.00 noon. Applications should be sent to the Personnel Office, Oxford Polytechnic, Oxford OX1 2JF. Tel: 01865 272111. Ed. 100.

Computer Scientist for Petro-Chemical Research

Due to the increasing number and complexity of projects both in hand and imminent, our Research Centre at Abingdon - which specialises in fuels, lubricants, and additives - needs a technically-minded and creative man or woman to join a small team providing an efficient and flexible computing service for our scientists and technicians.

Using the Centre's multi-terminal interactive PDP 11 System linked to the worldwide Exxon IBM 370 network, this team is responsible for all aspects of computer application and development arising from projects under investigation, including the use of mini computers in data logging and real-time applications.

With a degree in Maths, Statistics, Chemistry, Electronics, Chemical Engineering, or an associated discipline, you must be able to appreciate the scientific problems encountered in our research - logically thinking them through to provide cost-effective computer solutions.

At least one or two years' practical experience with systems or software is essential - preferably in a scientific environment. A statistical background would also be an advantage.

A competitive salary will be supplemented by a full range of benefits; and generous relocation assistance to this attractive rural area - just an hour away from London and only 20 minutes from Oxford - will be provided where appropriate.

Please write with full details, to: D P Sweeney, Employee Relations Service, Esso Research Centre, Abingdon, Oxon OX13 6AE. Or phone him on: 0235 21600.



Programmers Opportunities to move into ADVANCED SOFTWARE DEVELOPMENT

A number of opportunities exist to join the young, enthusiastic and professional software development team at Membrain, using advanced structural development techniques to design and implement software which will be the most advanced ATE software in Europe.

The team is now entering an exciting stage in the development of new software for the recently launched MB7700 (range of microprocessor controlled ATE) including:

- ★ High level language compilers
- ★ Automatic program generation
- ★ Advanced fault diagnosis algorithms
- ★ Sophisticated program debug packages

That's just for 1978!

1979 will break further new ground with the introduction of more new products.

Interested? Then read on!

Whilst a knowledge of automatic test equipment would be advantageous, the minimum requirements are education to degree level, preferably in computing science or electronics, and at least one year's experience, ideally in a scientific or technical environment with familiarity with languages such as Algol or Coral 68.

We offer excellent starting salaries depending on experience, and our other benefits include a profit-sharing bonus scheme.

We are located in a convenient part of Dorset, close to Bournemouth and the coast, and where appropriate, we provide generous assistance to enable you to relocate to this area.

For immediate consideration send details of your qualifications, experience and salary expectations to:

Donald Crawford
Membrain Limited
Farnham Industrial Estate
Wimborne, Dorset
Tel: Farnham (0202) 893938



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PLYMOUTH, DEVON

We're the winners of the Western Regional final but it isn't in track events that our teamwork excels.

In our working environment we are also geared up for any event with some of the most sophisticated techniques and software available.

Not only that, but our entire computing function is about to be reviewed with substantial investment in a major up-grade of Sigma 8 hardware.

To add to our winning team of professionals we need experienced people to be immediately involved in the development of several wide range projects. These include: Data Base and Real-Time On-Line facilities via VDU's using COBOL as the main language.

So, if your experience in programming would fit into our team we will be more than delighted to put back some energy into your computing career.

For further details write to Mrs. V. Agnew, Central Services Personnel Manager, The Rank Organisation Limited, 435-445 Godstone Road, Weybridge, Surrey; or 01835 6100, or telephone Upper Weybridge 591 (evening hours).

THE RANK ORGANISATION

SOCIAL SCIENCE GRADUATES TEMPORARY APPOINTMENTS

Applications are invited from social science graduates for a temporary Scientific Officer post with the Social Science Research Council. Initially the appointment will be for up to 6 months with the possibility of renewal for a further six months and the successful candidate will work as part of a team providing the Secretariat for the Computing Committee, as well as the Management and Industrial Relations Committee. Applicants should normally be under 27 and have a good honours degree in a relevant subject. Training, research in, or experience of social science computing is desirable, as also would be experience in administration. Salary scale £3304-£4880 p.a. (including Inner London Weighting and Pay Supplement). Salary may be above the minimum depending on class of degree and experience. Application forms and further details may be obtained from: Mrs. Vera Bishon, Social Science Research Council, 4 Temple Avenue, London EC4A 3DD. Tel: 315 8262 ext. 110. Ref: 780/CW. Closing date for applications: 30th June, 1978.

KILBURN POLYTECHNIC PART-TIME LECTURERS

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or for those with the following subjects:
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AUDITING & INVESTIGATIONS
MANAGEMENT MATHEMATICS
ACCOUNTING &
STATISTICS
DATA PROCESSING
ECONOMICS
Applicants should have a minimum of 3 years' experience in the field of the subject. Business and Professional Studies, Kilburn Polytechnic, 100, Kilburn Lane, London NW5 1JF. Tel: 01-461 0022.

Our Client's leading position in the European Time Sharing Market is based upon its success in offering a powerful, highly-reliable Communications Service. Following increased sales they now wish to augment their Network Trouble-shooting team.

The successful candidate will have:

- ★ Experience of network-control techniques, probably having gained this in a senior position in Operations.
- ★ An appreciation of telecommunications hardware and software.

The challenge will be to act as a technical trouble-shooter/consultant in pre- and post-sales situations, as well as assisting in the development of new network facilities. Career prospects and continuous training, in an environment of keen professionalism, are impressive, and reflect the vast technical resources and attitude of this International Corporation.

Ref: CW/6/2

CONTACT: Dave Scarlett ON: 01-935 0671

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MANCHESTER 061-633 0427
Freeport, Blackfriars House, The Parsonage, Manchester M3 8BB
LONDON 01-935 0671
Freeport 6, 102, Blandford Street,
London W1E 1JZ



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THE PEOPLE we are looking for will be currently earning £4,000-£8,000 p.a., have had 3-5 years experience in a systems and programming environment and be looking for the opportunity to develop their basic experience gained to date in one or more of the following areas:

- Insurance • Banking • Investment
- Telecommunications • Database
- Project Management

Please telephone for an application form between 0930 and 1800 or write to: Colin Smith, CMG (City of London) Limited, Eastgate 73 Leman Street, London E1 6EY 01-481 3881

CMG
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UK & OVERSEAS OPPORTUNITIES

PROGRAMMERS

MIDDLE-EAST COUNTRIES

Our client is a major international organisation with offices throughout the world. They seek programmers and analysts in BAHRAIN AND JEDDA where their market is growing strongly. Ideal applicants will have COBOL and/or NEAT experience on NCR small business machines, particularly 380 and 480 to work on an interesting variety of planned projects in a financial and commercial environment.

- * Renewable one year permanent contract.
- * Fully furnished accommodation provided at the company's expense.
- * 30 days' LEAVE per annum.
- * Salary: Paid in Bahrain Dollars £12,000 circum TAX FREE.

Ref. 1883

IBM PROGRAMMER

HERTS.

Our client a sophisticated computer and technology company has openings for a number of experienced programmers. Candidates should have at least two years' experience on any high level language. Company offers:

- * Development of real time systems
- * Excellent career prospects
- * Exciting and interesting work in up to date technology
- * Subsidised lunch, pension scheme plus other company benefits
- * Salary £8,000

Ref. 1802

IBM PROGRAMMERS

SURREY

Major UK company wishes to strengthen its successful programming team. Retaining IBM 370 under DOS VS, they seek people with at least 18 months' COBOL experience to enhance their existing projects and to program new projects. Co. offers:

- * TRAINING in DL1 and CICS
- * Career prospects
- * Good working conditions
- * Salary to £8,500

Ref. 1851

HONEYWELL ANALYST PROG

LONDON

Manufacturing company producing a wide range of household goods is seeking an analyst/prog with at least two years' COBOL experience. The successful applicant will join a professional and enthusiastic team utilising Honeywell Mainframe and previously had GCOS experience. Co. offers:

- * Excellent working environment
- * Good career prospects
- * Life Ass., BUPA, LVE, and 4 weeks hol.
- * Discount on all company products
- * Salary to £8,000

Ref. 1493

PROGRAMMER

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Our client is a major organisation providing comprehensive marine engineering and construction services to companies engaged in Hydrocarbon development. Retaining IBM 370 under DOS/VS they seek a person with four years' COBOL exp. with PL/1, RPG or ASSEMBLER an asset. Co. offers:

- * Variety of projects in rapidly expanding co.
- * Centrally based - BRUSSELS
- * English speaking environment
- * Settling in allowance for married or single persons
- * Salary approximately £18,000 p.a.

Ref. 1474

MINI PROGS

CITY

Our client, a well established financial group, is setting up a new company to deal with a rapidly expanding area. This is a super opportunity for prog with experience on any mini hardware. BASIC would be an advantage but they will train on their own new language. If you want a CHALLENGE and to be involved right from the beginning phone NOW. Co. offers:

- * TRAINING in RSL IIM and RSTS.
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Ref. 1882

JUNIOR PROG

LONDON

Our client a prestige commodity brokers with offices throughout the world, are seeking PL1 programmers. They retain IBM 370 hardware and if you have 1 or more years' experience apply NOW for this fantastic opportunity. Co. offers:

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- * TRAINING in software
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- * Salary £4,500 to start

Ref. 1818

IBM PROGS

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Our client, a prestige Bank, are recruiting programmers with at least 18 months' COBOL experience. Retaining IBM 370 under DOS VS. This is a great opportunity for a competent and ambitious programmer to join a professional team. Co. offers:

- * EXCELLENT promotional prospects
- * TRAINING in CICS
- * Excellent working conditions
- * Salary to £8,000 + CHEAP MORTGAGE

Ref. 1886

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MIDDXX

Our client, a major organisation, situated close to both M4 and M3 motorways, is seeking a senior analyst to act as PROJECT LEADER on a wide range of applications. If you have approx. three years' systems experience, preferably in ICL 1800 series environment, and are able to demonstrate a professional approach to project management apply NOW. Co. offers:

- * Job security with a prestige concern
- * Responsibility
- * Excellent working conditions
- * FREE lunches, free Life Assurance
- * Salary £8,500 + company car

Ref. 1829

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Our client is a major organisation meeting the ground power needs of world's airlines by engineering a broad range of products to clients in more than 100 nations. Retaining Honeywell 62/40 under GCOS, they seek persons with 2/3 years' COBOL exp.

- * Responsibility as the No. 2 to the DPM
- * Lots of user liaison
- * Variety of interesting applications with Honeywell IMS package
- * Excellent fringe benefits
- * Salary DFL 42-48,000 (£12,000)

Ref. 1838

MANAGER

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Prestige city company seeks No. 1 person with dynamic personality and sound D.P. experience to take role of manager. Successful candidate should have worked in an ICL installation and hopefully insurance background.

- * General management of D.P.
- * Sound programming & analysis
- * Systems Design
- * User contact
- * Salary £10,000

Ref. 1887

ICL PROGRAMMERS

LONDON

Due to development of their advanced computer systems, successful D.P. services dept. seeks to boost its programming team. Retaining large ICL 1800 equipment they offer excellent opportunities for persons with min. two years' ICL COBOL exp. Co. offers:

- * Opportunity to join at senior level
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- * Development to analysis
- * Applications in various areas providing an absorbing and interesting career
- * Etc. perks include flexi-hours and 8 WEEKS HOLIDAYS

Ref. 1849

ANALYST PROG

CITY

Fantastic opportunity to join world-wide financial concern retaining IBM sys 3 for analyst programmers at varying levels with minimum 2 years' RPG/1 experience.

- * Opportunity to attain PROJECT LEADER level
- * Training on CCP
- * Newly planned projects
- * Exciting growth potential
- * Salary to £8,500 + perks

Ref. 1847

JNR PROGS LONDON

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- * Training in T.D. and Database.
- * Development work on new sophisticated systems
- * Career progression with forward thinkers
- * Up-to-date technology
- * Salary to £4,800

Ref. 1880

SNR ANALYST PROG

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European division of American manufacturing co. seek potential EDP manager with personality, drive and enthusiasm for their PDP-11 installation. Applicant should have substantial amount of years in systems analysis and programming on PDP-11s with a good working knowledge of MUMPS. He/She will be involved in design + implementation of commercial + Statistical systems integrated databases.

- * English speaking co.
- * RSX11-M operating system planned for implementation early next year.
- * Salary to DFL 56,000 (£14,000 approx.)

Ref. 1845

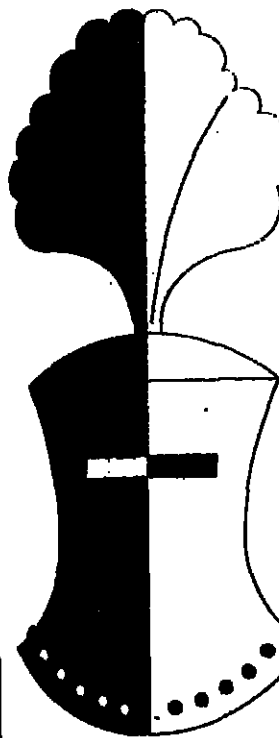
SNR ANALYST PROG

WEST LONDON/BERKS

International company with outstanding reputation for efficiency, growth and investment are seeking senior analyst programmers to work within IBM 370 installation. Good experience of PL/1 or COBOL or ASSEMBLER is essential with ability to work on own initiative and supervise staff. Working on teleprocessing and time-sharing systems with opportunity to work on small business machines. Co. offers:

- * Exciting growth potential
- * Excellent promotion prospects
- * Non-contributory life assurance sickness and pension scheme
- * Good working conditions
- * Salary to £8,000

Ref. 1888



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IBM MK IV/COBOL

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OFFICES: AMSTERDAM, PARIS, BRUSSELS, LONDON, BIRMINGHAM



COMPUTER DEVELOPMENT LEADER

Our client is a medium-sized engineering company based in North Cheshire and part of a well-known international Group.

The Company has an imaginative plan for extensive computer development during the next three years and the first stage of this development is now underway with the introduction of a communication based ICL 2903 configuration to replace the existing 1901A configuration.

Technical involvement at the system design stage and in the programming of the more complex elements of the system will be essential as will the ability to supervise the activities of any third party software houses engaged. There will be liaison with other management departments.

Previous systems experience preferably in a manufacturing environment, together with fluency in COBOL, are therefore the essential qualities required. You must be at home with the 2903 range and its operation systems and have a good working knowledge of communications.

Salary will be commensurate with experience and qualifications and other conditions of service, including a contributory pension scheme and free life assurance, are first class.

Candidates, male or female, should apply in the first instance, giving details of age, experience and present salary, to:

The Appointments Manager
Chetwynd Streets Advertising Ltd.
Dennis House
Marsden Street
Manchester, M2 1HT

ANALYST/PROGRAMMER

W.1.

C £6,000

International organisation buying merchandise for major U.S. retail group requires Analyst/Programmer to complete our small systems team.

We should particularly like to hear from COBOL Programmers who can establish user requirements and prepare program specifications for small/medium systems. Areas of experience that would be helpful are:

- * 2-3 years' COBOL experience
- * Systems investigation
- * User liaison
- * Order processing
- * Retailing

This is an opportunity to join a small professional EDP group utilising a bureau based £370/158 operating in an OS environment. Excellent non-contributory benefits including BUPA, pension and life insurance 50p LVE daily, and interest-free season ticket loans.

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01-491 4706

Knights' Bureau
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(University of London)

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IN COMPUTING SCIENCE

Applications are invited for a temporary Lectureship in the Computer Science Department for a three-year period with effect from October 1, 1978. The appointment will be made on one of the first three points of the lecturer scale (up to £14,650 plus £1,300 London weighting).

Applicants (18 copies) should be sent as soon as possible to Dr. J. Buckingham, Personnel Officer, Westfield College, Kilburn Avenue, Hampstead, London, NW2 7ST. Further details about the work of the Department may be obtained from Dr. P. E. Omon, Tel. 01-435 7141, Ext. 521.

IF YOU ARE A

FORWARD: COBOL, PL/1, PASCAL, RPG II

PROGRAMMER

May: VIP CONSULTANTS

INTERNATIONAL

01-491 3289/493 9095

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Microcomputing in Dataskil

£4.0K - £7.5K

Dataskil needs men and women with experience in high speed real time computing on mini and microcomputer hardware. Ideally you will have experience as a programmer, a systems engineer, or system analyst in one or more of the following areas.

- Data Communications handlers
- Process Control
- Air Defence Systems
- Air Traffic Control
- Radar or Sonar analysis
- Radar or Sonar simulation
- Control and Guidance systems (weaponry)
- Control systems for Field Artillery
- Machine tool control
- Environmental Simulators

You should understand computers and enjoy the idea of stretching them to their limits. Specific machine and language experience is not an immediate consideration. However, COBOL, ALGOL, or FORTRAN are desirable. Where necessary training will be provided. The quality that candidates must bring with their application is an enthusiasm for 'real' real time computing.

In return we can give you the challenge of a job which offers considerable variety in a number of customer locations. You will appreciate our informal way of working and our ability to adapt to your individual career requirements. If you are adaptable and mobile, and possess good communication skills, your career opportunities with Europe's leading software services company are excellent.

Write, giving details of yourself and your career to date, outlining references C1878 to Mr. C. C. H. Dennis, ICL Dataskil, Reading Bridge House, Reading, Berkshire, or phone him at home during evenings and weekends on Radlett (09278) 7511.

ICL Dataskil The Computer Professionals

ANALYST/PROGRAMMER - EIRE c.£5,000

One of our customers has asked us to assist in the selection of an Analyst/Programmer to assist in the implementation of a 2803/40 system. Ideally the person selected will have the following experience.

- * Experience of 1900/2803
- * 2 years' COBOL programming
- * Should have been involved in the implementation of one major system.

In return the following benefits will apply:

- * Attractive salary and conditions
- * Pleasant surroundings - one hour's drive from Dublin
- * In at the ground floor of development
- * Progress to on-line processing in the future.

Write or phone for application form to: Mrs M. McGee

INTERNATIONAL COMPUTERS LIMITED

ICL House, Adelaide Road, Dublin 2 Telephone No. 756761

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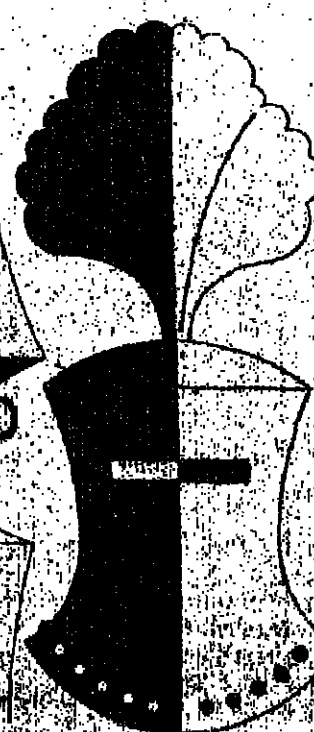
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PHONE NOW FOR IMMEDIATE AND FUTURE CONTRACTS.
Ring Christine Kay/ David Hayton, 01-734 0182 (24 hours)

KNIGHT PROGRAMMING SUPPORT LIMITED

27 NOEL STREET, LONDON W1. TELEPHONE 01-734 0182/8 (24 HOURS)

OFFICES: AMSTERDAM, PARIS, MANCHESTER, BIRMINGHAM



Opportunities in Computer Programming

A far-reaching programme of work and computer enhancement has created opportunities at our head office in Surrey for people looking for career progression and job satisfaction, tackling the challenging problems arising from our development plans. The present installation consists of a large ICL 1904A configuration which will be replaced by dual ICL 2980's in January 1979, with future emphasis being placed especially on database and communications potential.

The people we need should have a capacity for original and logical thought and the initiative to work with minimal supervision. We give comprehensive training and recognise individual potential for development on to systems analysis work. Programmers are encouraged to use their ability and experience to contribute as much as they can to the design and planning stages. Promotion is based entirely on merit and the senior positions in the department are almost invariably filled from within.

Candidates should either have relevant programming experience or be suitable for a post as trainee programmers, i.e. of degree standard or with a successful career background.

An attractive starting salary is offered which is dependent upon age, qualifications and experience.

Excellent conditions of employment include contributory pension fund, free life assurance and all the benefits of working for a large organisation. We operate a Flextime system and have an excellent sports and social club.

Please write or telephone for an application form from

MMB The Personnel Officer
Milk Marketing Board
Thames Ditton
Surrey KT7 0EL
Tel 01-398 4101.

At its London headquarters, the Authority operates two IBM 370/148 Computers connected to a large (150 terminal) teleprocessing network covering the principal centres of population in the Region.

Interesting developments in this network are in hand involving the evaluation of IBM's Series 1 and similar equipment.

The software environment is VM with DOS/VS, OS/VS1 and CMS. The teleprocessing monitor is SHADOW with TP programs written in IBM Assembler. Batch work is handled almost entirely by Informatica MARK IV file management system. Applications are invited from suitably qualified persons for the position of:

Project Leader Program Development £6,834 - £7,302 PER ANNUM (Currently under review)

The successful candidate will manage a team of system analysts and programmers in the day-to-day maintenance and production of new suites of programs to installation standards. Four years' experience of programming and system analysis, two in a senior role, are a minimum requirement. Knowledge of Informatica MARK IV and IBM's Basic Assembler Language would be an advantage, although more weight will be given to evidence of leadership and organising ability.

35 hour week.
Generous holidays.
Pension Scheme - interchange arrangements.
Staff restaurant.

Applications, quoting reference CW and giving full particulars of age, educational qualifications and previous experience should be sent not later than (5 days from publication) to: Laurence O. Wild, C.Eng., F.I.C.E., F.I. Mach.E., F.I.W.E.S., Division Manager, Room 650, Thames Water Authority, Metropolitan Water Division, 173 Rosebery Avenue, London, E.C.1.

THE POST IS OPEN TO MALE AND FEMALE APPLICANTS.

Thames Water

CITY OF MANCHESTER Treasurer's Department COBOL PROGRAMMERS ANALYST PROGRAMMERS

£3,385-£4,214 p.a. (including increments)
(Phone 111 interview appointments from 1.7.1978)

Based in the City Treasurer's Computer Section which operates a large ICL System 4/72.

Applicants should have experience in systems analysis or programming using COBOL or another high level programming language.

The successful applicant will be responsible for detailed systems work, programming, project documentation, program development and advanced on-line systems, with more to be developed in the future.

Conditions of employment are good and follow normal local authority practice. A 35-hour week with flexible hours is in operation. The salary is in accordance with a salary scale Grade 39/4 £2,925-£3,702 plus maintenance of £6 a week and a minimum of £2.50 a week. Starting salary will be according to age, experience and qualifications.

Applications giving details of age, education and experience should be sent to: Mr. J. H. Williams, Personnel Officer, P.O. Box 314, Town Hall, Manchester, M60 2LS.

Corporation of London Guildhall, E.C.2 PROGRAMMER £4183-£5954 (Salary review July 1978)

The Corporation of London is seeking a Programmer to join a team of five other programmers in its installation which is responsible for a wide range of financial and non-financial systems. For example, Integrated Accounting System, Rate and Rent Collecting System, Stores, School Fees, Payroll, etc., together with Traffic Tickets, Register of Electors and Examination System, etc.

The successful candidate should have 18 months of COBOL or PLAN programming experience and will be given in-house training and further external training as necessary. The general environment is such that a broad base of expertise can be obtained from the installation. Both COBOL and PLAN languages are used.

The salaries are inclusive of a salary supplement of £312, special supplement £477 and the 5% Phase II salary adjustment, and will be commensurate with experience. Annual increments are then granted up to the scale limits. Other benefits include generous holidays, superannuation scheme, season ticket advance, subsidised staff restaurant and resettlement advances in approved cases.

The installation comprises an ICL 1902S 48K store processor, 3EDS, 4 tape decks, etc. and GEORGE 2 operating system in use.

Applications with details of working experience and Academic passes, or enquiries, are invited and should be addressed to:

Computer Services Manager
Guildhall, London, EC2P 2EJ

Line Controller

£24500
+ Preferential Mortgage Facilities
Bexleyheath N.W. Kent

The Woolwich, which is one of the country's largest building societies is enhancing its teleprocessing system to support its branches throughout the U.K.

The Society wishes to recruit a Line Controller who will assist in the operational running of what will ultimately be a large IBM based data communications network.

Candidates should preferably be educated to 'A' level, although good 'O' or CSE levels will be acceptable. Previous experience of controlling a data communications network is essential.

A comprehensive remuneration package accompanies this position including a preferential mortgage facility and excellent pension scheme. Relocation expenses may be paid where necessary.

Please ring Mr A. Hughes - Network Controller, on Crayford 528232 Ext 503 (day) or 01-853 8181 evenings/weekends. Alternatively please write to the above for further details or application form at Woolwich Equitable Building Society, 30 Edith Road, Bexleyheath, Kent, DA7 8BP.

WOOLWICH
EQUITABLE BUILDING SOCIETY

Computer Programmer Research

This appointment offers the chance to join a new pharmaceutical research organisation which is part of one of the world's largest chemical companies. We are seeking to appoint an Analyst Programmer within the Computing Services Group to develop and maintain a variety of software to meet all the data processing and statistical needs for a multidisciplinary group of life-scientists.

The central hardware consists of a Hewlett Packard 21 MX(E) computer with the 50 MB HP 7920 disc linked to a HP 2100 computer and HP 7900 disc. Appropriate peripherals are mostly distributed through the laboratories in accord with our policy of on-line capture and central processing of all data. The scientific disciplines to be serviced include synthetic chemistry, drug analysis, pharmacokinetics, drug metabolism, pharmacy, immunology and information services. A fully equipped electronics laboratory supports this function by the provision of micro-processor based interfaces and other devices as required.

The successful candidate, male or female, will therefore have a minimum of five years experience in a scientific and/or statistical environment and be fully conversant with Fortran and Basic languages. A formal knowledge of statistics would be an added advantage.

A first class salary will be paid, conditions of employment are excellent and our benefits package is of the standard expected from a major international company.

Please write or telephone for an application form to:-

Mrs. M. C. Hannay, Personnel Services Manager, Hoechst UK Limited, Walton Manor, Walton, Milton Keynes, Bucks.
(Telephone Pineham 5088)

Hoechst



DECISIONS, DECISIONS.

Three great places to work, and plenty of work to get your teeth into. At Westinghouse we are at the forefront of innovative technology in the use of computers for railway systems, mining, and process controls. Our order books are growing and we need ambitious software staff to work on a variety of projects involving mini and micro computers, real time process control and monitoring, CAD linked support systems etc. We've got a wide range of machines: HP NOVA, DEC, and languages: CORAL 66, RTL 2, ASSEMBLER, FORTRAN etc.

We're currently looking for:

Project Leaders
Analyst/Programmers
Programmers
Senior Systems Analysts
Systems Analysts

The jobs are based in Chippengham, Bracknell and Wokingham. You make the decision where you want to work - in any place you'll find the work challenging and absorbing.

If you're really good at problem solving and want to gain more experience in a company known worldwide for its innovations in modern systems then Westinghouse is the company for you.

Write today to: P.A. Murley, Company Personnel Officer, Westinghouse Brake and Signal Co. Ltd., FREEPOST, Chippengham, Wills, Telephone Chippengham (0249) 4141

WESTINGHOUSE
Brake and Signal Co Ltd Chippengham Wills
Advanced Technology in Chippengham, Wokingham & Bracknell.

NORTHERN ENGLAND CONTRACT PROGRAMMERS

Salary: £7,500-£10,000 per annum (dependent on experience)
Immediate or up to 2 months' shift for 270 COBOL PROGRAMMERS
H84, T04 or IDS COBOL PROGRAMMERS
H800/88 COBOL PROGRAMMERS
H800/88 COBOL PROGRAMMERS
ASSEMBLER PROGRAMMERS

We offer continuity of work to all our contract staff and salaries are sent out twice a month. A minimum of 2 years' experience is required for all assignments. Please write or telephone: Lee Richards Ltd (Computer Recruitment Consultants), Bridge Buildings, Ladybridge Road, Chesham, Bucks. HP8 1EP (01-854 2830) Ext. 4323.

Senior Analyst Manufacturing Systems West of Scotland

for an important engineering group of US parentage employing over 300 people in the manufacture of process plant for UK and European markets.

An ambitious programme of new and extended computer applications is under way; current projects include production and materials planning, inventory control, productivity improvement, cost reduction and output statistics for management information.

Candidates, aged 30 to 45, must have at least five years' manufacturing systems design experience. Initial salary negotiable with attractive benefits including relocation, if appropriate.

Please write with brief details - in confidence - to W. J. O. Michie ref. PY32543.

This appointment is open to men and women.

MSL Management Consultants

Management Selection Limited
14 St. Vincent Place Glasgow G1 2EU

Computer Systems Management

£5,500-£6,500

Oughtn't your present job? Prospects looking bleak? If you are seeking professional challenge and career development in a progressive, forward-thinking company then your next move should be to Hilti.

We are part of an international marketing organisation and in the UK we're number one in supplying an advanced range of cartridge tools, fastening systems, and drilling machines to the construction industry. Sophisticated management services play an important part in keeping us out in front of the field and we now wish to appoint a Systems Manager, male or female, to strengthen the data processing team.

Age is not critical, but you will need solid experience of COBOL and systems analysis coupled with a creative thinking approach and a flair for communication. For an analyst or team leader (preferably having managed at least one major project) this is a first-class opportunity to gain broader experience of project control and man management.

Ring Graham Allington, Personnel Training Officer, on 081-872 6010 or write to him at Hilti (GB) Limited, Hilti House, Chester Road, Manchester M16 0GW.

HILTI

NORTH THAMES REGIONAL HEALTH AUTHORITY CHARING CROSS COMPUTER PROJECT

HOSPITAL COMPUTER PROJECT MANAGER

(Male or Female)
SALARY SCALE £2706-£2847 PER ANNUM (Scale 23)
(INCLUDING LONDON WEIGHTING AND SUPPLEMENTS)
(INCREASE PENDING)

A vacancy exists in the Department of Medical Computing Services, Charing Cross Hospital (Fulham) for a Hospital Computer Project Manager to take control of the development, introduction and continuing operation of computer systems at the Charing Cross Hospital and at other hospitals in the East, Hampshire and Hampshire Health Area.

INDIA MARKETING MANAGER SENIOR SYSTEMS ENGINEER SENIOR HARDWARE ENGINEER

A prominent Indian manufacturing company has recently formed a new division to build and distribute on a world wide basis an advanced commercial microcomputer.

Interviews for the above positions will be held in London, on June 23, 1978 with the Indian Principal present.

These opportunities offering excellent salaries and fringe benefits, are open only to Indian nationals.

Applicants should telephone Mrs. D. Stanley at 01-607 610746 to arrange an interview.

For further information and a confidential discussion please telephone or write to: Dean Williams, quoting reference no. CW185.

Borough of Gosport Senior Computer Operator

(£2,983-£3,773 per annum)
To work in Borough Treasurer's Department for ICL 2904. Consideration will be given to housing accommodation and relocation expenses.
Application form and further details from: Borough Treasurer, P.O. Box 4, Town Hall, Gosport, Hampshire (or telephone Gosport 070 771 9442 ext 102)

SOUTH LONDON PROJECT MANAGER DMS 1100 8-10K+ BONUS - CO. CAR INTERNATIONAL TRAVEL

THIS OUTSTANDING PROJECT MANAGEMENT opportunity is available to candidates who have an intimate knowledge of UNIVAC Software, especially DMS 1100. Applicants should possess the personality capable of interfacing between technicians, THE COMPANY and their Clients.

The Project Manager, who will be the "King Pin" of this MULTI-MILLION Pound contract, will need the SKILL, DRIVE and EXPERTISE to ensure successful completion of every stage of development to implementation.

A worldwide communications network is envisaged and the Project Manager will advise and consult with the Company's clients - WORLDWIDE.

Our client's operation has grown into one of the largest and most successful computer services organisations in Europe with a multi-million pound turnover. They have a customer base in excess of 1,200 users with a network embracing the major continental cities.

Scope for further advancement is assured and the successful candidate can look forward to a stimulating and exciting future.

The salary is negotiable at between £8000 and £10000 per annum, plus bonus, company car, expenses and other excellent benefits. If appropriate our clients will assist with relocation expenses.

For further information and a confidential discussion please telephone or write to: Dean Williams, quoting reference no. CW185.



Insight Marketing & Personnel Consultants Limited
72-75 Marylebone High Street
London W1M 4AJ
Telephone No. 486 5644

TEHRAN

**DON'T BE SHORT-CHANGED
CHECK YOUR PACKAGE
AND YOUR CAREER**

HIGH TAX FREE SALARIES PLUS FAMILY ACCOMMODATION AND OTHER SUBSTANTIAL BENEFITS

If you have Honeywell 6000 or Level 66 experience and are considering a term in Iran, then here are the best opportunities available. My client is one of the USA's leading Honeywell systems software companies and as such is able to offer the top packages for Tehran.

Consider the following:

TAX FREE SALARY

A generous tax free cash income of between \$27,920 p.a. and \$33,680 p.a. for personnel with 4-8 years' applications experience. Higher salaries are available for more senior and specialised positions.

ACCOMMODATION

The company provides a separate apartment for EACH employee, the size of which varies according to the family.

The company pays for all utilities, e.g. gas, electricity, etc. with the exception of the telephone.

The company provides a good standard of furnishings for the apartment including television, washing machine, fridge/freezer, etc.

N.B. The company budgets for an average of \$17,000 to cover first year rental and furnishings for EACH apartment.

ADDITIONAL BENEFITS

- The company provides home to office transportation
- The company pays local school fees for children over 5
- The company pays Medical Insurance
- The company pays emergency home leave where necessary

HOME LEAVE

The contract is for 18 months' duration and a family trip home is paid for after 12 months.

JOB CONTENT

The company has been awarded a substantial contract due to its reputation for systems and software development based on Honeywell computers. The scope of this project ensures a high level of job satisfaction.

FUTURE CAREER PROSPECTS

The company is a well established systems software house and NOT just a bodyshop. Consequently, they view each new appointment as the start of a long term career through an initial assignment in Tehran. In addition to IRAN, future opportunities exist in the USA, UK and EUROPE.

REQUIREMENTS

PROGRAMMER/ANALYSTS

Minimum of 4 years' good experience in COBOL with applications knowledge of GCOS and JCL.

SYSTEMS PROGRAMMERS

Around 8 years' experience in DP with extensive knowledge of GCOS, GMAR, TDS and/or NPS.

DATABASE SPECIALIST

Around 8 years' experience in DP with extensive knowledge of GCOS, IDS, TDS and database design.

CALL DAVID J. HUTCHINSON ON 01-499 4501 TO DISCUSS

THE BEST OFFER AVAILABLE

REF RW 24/1

hutchinson-scoggins recruitment
10 Dover Street, London W1X 3PH
Telephone 01-499 4501

CREATIVE PEOPLE for a CREATIVE COMPANY

LONDON

My client currently operates a large twin IBM based bureau, specialising in systems for the advertising industry. They are soon to take delivery of an additional machine, a PDP 11/70 to cater for their expansion programme (future plans include ordering 2 more PDP 11/70s during the next 18 months). Enjoying the financial support of their parent public company, this thriving young subsidiary employs approximately 60 DP staff. It has good internal communications, with highly visible senior management, and practices a "promotion totally on merit" policy. All the current systems are to be completely re-designed and rewritten to operate in an on-line environment.

PROGRAMMER/ANALYSTS IBM DOS COBOL Up to £6000

Currently over 40 advertising agencies are serviced by these administrative and accounting systems. These systems are undergoing significant enhancements and development of new facilities towards a totally integrated package to cope with the needs of the advertising industry.

This interesting project requires self-reliant, young professionals who can enjoy a company atmosphere which encourages them to use their initiative and imagination to the full. The steady pressure of an assured, workload will enable you to develop your skills at your own pace. Planned growth will allow the company to accommodate fast developers.

REF. RW 24/2

DEC PROGRAMMERS £4000-£6000 BASIC +

The installation of a large disc based PDP 11/70 and the probability of 2 additional 11/70s in the next 18 months give rise to a heavy development schedule. Very interesting projects are to be undertaken including sophisticated on-line systems for the booking of TV time. The machine will operate under RSTS and use RMS 11/K file management system.

Excellent opportunities exist for junior programmers to join a very attractive company and for senior programmers to gain highly marketable experience developing sophisticated systems in a technically advanced environment. All positions require some exposure to DEC programming, preferably BASIC+ under RSTS.

REF RW 24/3

RSTS SPECIALIST MANAGER £ NEG

This person will be responsible for the generation and maintenance of machine software and the development of PDP applications programs by his team. He will be highly experienced in DEC systems and possess a thorough detail level knowledge of RSTS. This is a superb opportunity for a strong technician to develop his career into management through an interesting and challenging role.

CALL DAVID J. HUTCHINSON ON 01-499 4501

REF RW 24/4

Philips Telecommunications Computer Controlled Telephone Exchanges

The recent large order from Saudi Arabia has confirmed the position of Philips as one of the world leaders in the supply and manufacture of computer controlled telephone exchanges. This, plus enhancements and additions to the range of switching systems, coupled with the current rapid expansion of the department, has created vacancies within the U.K. part of the international development team working on these systems. The U.K. base for this effort is Malmesbury, Wiltshire where the laboratories of Philips Telecommunications and Pye TMC are located. The development effort extends into the fields of space and time division switching systems, local and trunk applications, integration of microprocessors, and network management centres.

Software Systems Designers Systems Programmers

£4,000-£7,000

Are required to work in real time telephony applications, basic operating system design and general support areas. At least two years programming experience - preferably in assembler and control systems programming, is required for the systems programming vacancies. Four or more years experience in real time control systems software design is required for the senior positions. Experience of telecommunications would be advantageous. Some positions may entail occasional short visits to our other laboratories in Holland and Belgium.

Malmesbury is in the north west corner of Wiltshire between the Marlborough Downs and the Cotswolds and combines a town of historic interest with all the amenities of a modern community. Motorway systems and good class roads bring it within easy reach of most major towns and cities.

These are exceptional opportunities providing scope to develop your expertise.

First class salaries and conditions of service are offered and assistance with relocation will be given where necessary.

STOP PRESS

Job Opportunities also exist in Holland

Please write giving full details of career to date quoting Reference HC. to: Jane Thomas, Personnel Manager, Pye TMC Limited, Swindon Road, Malmesbury, Wiltshire SN16 9NA

PHILIPS

HERTS/MIDDLESEX NOTICE TO SYSTEMS ANALYSTS

Haymarket Computing are D.P. recruitment specialists to 35 companies in the Herts/Middlesex area. Such is the current computer employment market that at any one time almost all of these companies have vacancies for Analysts and/or Programmers. At the present moment, however, our most urgent need is for Analysts on behalf of 12 clients in the following areas:-

Cockfosters
Borehamwood
Potters Bar
Waltham Cross
Hemel Hempstead
Hayes

Stammore
Harrow
Wembley
Southgate
Tottenham
Luton

Salaries range from £4,600 to £7,300 covering all levels of experience from Juniors to Project Leaders.

For more information ring:
HAYMARKET COMPUTING LTD.
Tel: Cuffley (Herts.) 4130
up to 6.30 p.m.

MIDLAND RECRUITMENT FEATURE

Advertisers are reminded that on June 22 Computer Weekly is highlighting career opportunities in the Midlands with a recruitment feature.

To secure space in this important feature:

Contact Alan Scott 021-355 4838 or John Farrar 01-261 8098

Copy deadline: 4 p.m. Friday, June 16



Data Processing Recruitment Consultants

PL/1 Programmers City of London

Salary: not less than 6K & up to 9K Plus Mortgage

An Important International financial institution based in the City is expanding its team members and is seeking PL/1 programmers at all levels up to and beyond team leader level. Ideally, you will have around 3 years of solid PL/1 experience under O.S. and will either have on-line expertise or a desire to move into this area or Data base design through participation in our Client's training programmes.

Of particular importance is the ability to work as a member of a specialist project team under strict documentation and programming standards. A second language (COBOL or Assembler) would in addition be considered advantageous. Our client offers a 2½% subsidised mortgage, personal loan scheme private health and a non-contributory pension plan. Interviews will be held in London during June.

Ref L120A

Mini Communications E.E.C.

Salaries: £9.5-15K + exceptional benefits

A prestige International Client is seeking to expand and establish new project teams working on wide and varied applications areas with emphasis on Data Communications, Message Switching and Mini Software. Existing and new project teams require Consultants, Systems Designers, Senior Analysts, Analyst/Programmers and Programmers with direct, relevant experience in at least one of the above areas of activity. In particular extensive Mini Computer Assembler experience is essential. Successful candidates are likely to be aged between 22 and 35 with either a degree or equivalent

(Computer Science or Maths) or extensive relevant experience in lieu. You are certain to contribute valuable expertise to this prestigious group whilst expanding your own threshold of experience through working closely with other professionals at your own level. Our Client will pay full re-location expenses for you and your family and provide a generous re-settlement advance in addition to meeting the costs of temporary accommodation pending location of permanent housing. Numerous other first-class benefits go to making this a very attractive opportunity.

Ref L120B

IMS Data-Base London + E.E.C.

Salary: U.K. to 9K E.E.C. to 16K

Our client one of the 'Seven Sisters' Oil Companies has asked Logistix to assist in recruiting a number of IMS Data base specialists up to project leader level and beyond. The only pre-requisite incorporated in our brief is that candidates are able to demonstrate solid IMS Data base skills. DL/1 is of course essential and if linked with PL/1, COBOL or Assembler will be of considerable interest to our Client.

This company is amongst the most advanced and sophisticated users of D.P. and should be regarded for its long-term career potential rather than as a stepping stone to greener pastures. Fringe benefits normally associated with a Major Oil Company are offered together with other rewards of a more unusual nature. These are of course in addition to well above average salaries.

Ref L120C

Banking or Financial Applications Switzerland

Salaries: £1,500 per month

We have urgent requirements for a team of four comprising two Programmers an Analyst and a Project Leader to work in Switzerland. It is an absolute requirement that all applicants have considerable UNIVAC 484 hardware experience. Additionally, candidates with recent or current experience in a banking or other financial

environment will be of special interest. There will be an opportunity at the expiration of the project to relocate to West Germany, Spain or Scandinavia. Interviews will be held in our office by the end of June and offers to successful personnel made within seven days thereafter.

Ref L120D

Copenhagen Communications

Salaries to £15K

We have several outstanding permanent career vacancies for Scandinavia's foremost hardware and software systems suppliers. Particular machine experience is not essential but those who have a solid background in message and data switching, data communications and procedures will prove invaluable to the growth pattern this Company has set for itself. However of special interest are:

- | | |
|----------------------------|---------------------|
| a) Mini-Computers | b) Mainframes: |
| (i) DEC PDP 11 | (i) UNIVAC 1100 |
| (ii) DG Nova/Eclipse | (ii) IBM 370 |
| (iii) Prime 300/400/50 and | (iii) ICL New Range |

Interviews will be held in our offices on Monday to Saturday, - 9.00 - 21.00 hours basis throughout the remainder of this month.

Ref L120E

Logistix, Freeport 32, London W1E 3YZ
01 491 4636 Telex 28800

(Reverse charges)



Avon House, 366 Oxford Street, London W1N 9HA

Senior Systems Analyst

LONDON c. £8,000

Our Client, a leading international engineering Company has a requirement for a Senior Systems Analyst to be responsible for the implementation of their Accounting and other commercial systems. It is envisaged that this will be achieved by a combination of software house and in-house effort. The successful candidate will be responsible for both a small team of in-house programmers and for co-ordinating and monitoring the work of the software house selected.

Candidates must have a proven record of major systems development using data base and transaction processing techniques.

The in-house computer system is a newly acquired large mini installation to be used both for technical and commercial applications. The operating system supports Fortran, Cobol, RPG and Basic Language Compilers and Total Data Base Management. It provides time sharing, transaction processing, batch and remote batch processing and communication capability.

Please write, in complete confidence to

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CRAWLEY, SUSSEX

c.£4,000
(inc. Shift premium)

We are an expanding international company, manufacturing high performance cells and batteries for a broad range of applications.

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If you have OS/DOS experience and require an interesting job, with prospects, find out more by contacting:

John Pelham, Computer Operations Manager or Kevin Elvidge, Personnel Officer on Crawley 26041.

Mallory Batteries Ltd.,
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Crawley,
West Sussex

data scene

OPERATORS & DATA CONTROL

ICL 1900 GII SHIFT LDR	£4200	ICL	GI	SNR OP	18mths +	N. LONDON	£3600
Minimum 2 years' exp. required for this N.E. London installation. 2 shifts only. Perks include free meals.		ICL	GI	OPERATOR	1yr	W. LONDON	£3600
		ICL	GI	SNR OP	2yrs	C. LONDON	£4000
		ICL	GI	SNR OP	18mths	E. LONDON	£4300
IBM 370 OS SENIOR OP	£4600	ICL	2800	OPERATOR	1yr	MIDDX	£3500
Control London based financial installation requires OS OPS with 2 years' exp. and some JCL knowledge. Excellent career prospects.		IBM	DOS	OPERATOR	1yr +	C. LONDON	£3800
		IBM	OS	OPERATOR	1yr +	C. LONDON	£4000
IBM 370 DOS SNR & JNR OPS	£4400	IBM	OS	SNR OP	18mths	SUSSEX	£3700
1-2 years' exp. required for installation based in E. London. Excellent salary and perks including subsidised mortgage, loans and meals.		IBM	OS	SUPDAYS	18mths	W. LONDON	£4200
		NCR	B1	JUN OP	8mths	ESSEX	£3600
PDP II OPERATOR	£4000	83700	MCPV	OPERATOR	1yr	SURREY	£3750
18 months' exp. required for a Merchant Bank in the City. Good career prospects and perks include Mortgage subsidy.		UNIVAC	OS3	OPERATOR	6mths +	CITY	£3000
		PDP	DEC10	OPERATOR	18mths	C. LONDON	£4200
NCR B1-B2 OPERATOR/SENIOR OP £4000 +		PDP	DEC11	EVENINGS	1yr +	C. LONDON	£3800
A minimum of 2 years' exp. required for this N. London site. 3 shifts and latest NCR hardware.							

DATA CONTROL

PRODUCTION ASSISTANT OS/VS1	£4000	SENIOR DATA CONTROLLER - GI	KENT	£3500
2 years+ exp. in data Control, plus a good working knowledge of JCL. Good career prospects plus Season Ticket Loans and free BUPA.		SENIOR DATA CONTROLLER - IBM	C. LONDON	£3500
		DATA CONTROLLER/TAPE LIBRARIAN	CROYDON	£3500
		TRAINEE OPERATORS/DATA CONTROLLERS		£3300

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MIDLAND RECRUITMENT FEATURE

Advertisers are reminded that on June 22 Computer Weekly is highlighting career opportunities in the Midlands with a recruitment feature.

To secure space in this important feature:

Contact Alan Escott 021-356 4838
or John Farrar 01-261 8098

Copy deadline. 4 p.m., Friday, June 16

Your chance for Management

ANALYST/PROGRAMMER

BRENTWOOD, ESSEX c. £8,000
Now is the time to start thinking seriously about your future. The year is half gone and you're wondering along the same old job. Well here's your chance to change all that! Our client is a large insurance company. They have recently installed a new IBM System 32 in their modern offices in Brentwood, and they are looking for an Analyst/Programmer with good RPG II to head this department, and become responsible for the design and implementation of systems planned for this year. If you have at least 3 years' D.P. experience and feel that you can meet the challenge of this demanding position - call now for an immediate interview.

SYSTEMS ANALYSTS

HARTFORD £4800-£6000
Why commute? Why not take a local job offering similar salaries, fringe benefits and career opportunities? Our client is a major installation based in rural Hertfordshire. They are looking for additional systems analysts at all levels of experience, ranging from virtual trainees to those who have already made a major contribution to the implementation of at least one major system. Career prospects are good, fringe benefits attractive, and relocation assistance will be given. We certainly recommend further discussion.

SENIOR ANALYSTS

CITY £7000
Our client is a major U.K. shipping and container transport business. This substantial investment in Data Processing is based on IBM 370 hardware providing extensive teleprocessing facilities. Business expansion and hardware growth are contributing factors to their need for additional staff. Applicants should have at least two years' systems experience coupled with some knowledge of on-line applications. The most salary is attractive and fringe benefits are all you would expect from a company of this size.

SENIOR BUSINESS ANALYST

LONDON c. £7500
A large software house, shortly moving to new premises in the West End area, is currently seeking a Senior Business Analyst to join an expanding team of consultants. Applicants, who should be fully conversant with IBM mainframes, will have spent at least 5 years in Data Processing, of which at least 2 years must have been spent in a senior systems position. The ability to liaise at Director level is essential. This is an ideal opportunity for anyone seeking progression and responsibility. Remuneration commensurate with experience and responsibility. Please send your CV to: [Address] for full details. If you are interested, please call now for further details.

West London

SYSTEMS PROGRAMMER APPLICATIONS PROGRAMMER

£7000
Our client, one of the largest suppliers of systems software in the world, are looking to recruit the following:
SYSTEMS PROGRAMMER, to take the role "Product Specialist". You will become involved in the field support of our client's systems software which will involve regular international travel and a great deal more.
APPLICATIONS PROGRAMMER, you will already have at least 18 months' experience as an IBM Assembler programmer and be willing to "go it alone" in a hectic environment.
You will certainly receive just rewards for your efforts.
Our clients offer excellent conditions of employment, and the above salaries can be exceeded for exceptional applicants.

PETROLEUM ANALYSTS

£5000
Our clients, a world force in the Oil industry, are seeking to recruit top analysts for their Business Systems Development group, based in Central London.
Applicants must have at least 3 years' systems experience, preferably gained in an IBM environment, and be willing to travel internationally.
Conditions of employment are outstanding.

CHIEF PROGRAMMER

£7300
A leading manufacturing company based in rural Essex is currently seeking a Chief Programmer to complement their expanding Data Processing Department. At present it comprises an IBM 370 running under DOS/VS, with a large Teleprocessing network. Applicants, who should have spent at least 18 months in a programming environment, have a sound knowledge of Cobol and Assembler, together with teleprocessing experience. Project leadership ability is essential. This is an extremely dynamic and responsible position which requires a mature person with a strong desire to progress rapidly within D.P.

PROGRAMMING OPPORTUNITIES

HARTFORDSHIRE £5000-£6000
A number of vacancies have arisen in the Hertfordshire area in particularly Mainframe programming with strong commercial experience on multi or mainframe systems. Applicants should have a good knowledge of COBOL, RPG II or ASSEMBLER, and should have spent at least 18 months in a programming environment. The positions offer scope for advancement within an area of Data Processing which is by far the most progressive in the industry. The top range salary which you can find should reflect the fact that you're good enough. What's more, it's what our client will pay. If you think that you are ready for a change for the better, then call now for further details.

CENTRAL LONDON & OVERSEAS TRAVEL

CONSULTANTS

SALARY TO £11,000
Our clients, a major consultancy, are looking for individuals with a combination of a proven track record in a company and a proven track record in a consultancy. They are looking for individuals who can take a lead in the development of a new business and who are willing to travel internationally. They are looking for individuals who can take a lead in the development of a new business and who are willing to travel internationally. They are looking for individuals who can take a lead in the development of a new business and who are willing to travel internationally.

PROGRAMMERS

CITY £6000
Our clients, a major and dynamic software house are seeking to recruit Cobol programmers for a team in the City.
You will have two years' meaningful experience, and be keen to move into a Real Time environment. You will be working on a large data base software.
Conditions of employment are excellent, and include a top salary, profit sharing and travelling expenses.

FORTRAN OR ASSEMBLER PROGRAMMERS

SURREY SALARY TO £6300
An expanding software house situated near the Surrey border, are looking for programmers to work on commercial business systems using IBM computers. Ideally, you will have a minimum of one year's experience of these types of applications, and in addition, the company is looking for an Assembler programmer with five years' experience on multi-processors to work on a multi-processor system with communications and database. Experience on this sort of work will be well rewarded.

TRAINEES

HORSHAM, SUSSEX SALARY £2,800
If you have A levels and want to get into programming, then this company is the place for you. You will receive training and will eventually write a test program for the company's professional team and work in superb modern offices. You will also qualify for such benefits as cheap insurance and a mortgage subsidy. Ideally, you will live within travelling distance of the offices already. If this is not possible, a problem will be solved for you.

A CHANGE IS AS GOOD AS A REST

SYSTEMS ANALYST

To £7470

London

Applicants for this position are required to have a degree or similar professional qualifications, at least 3 years' data processing experience with 1 year analysis and design and a programming background. The company are an ICL installation and are looking for competent and qualified people who can liaise at all levels and manage effectively. For more details phone now quoting reference number.

AOC 1072

ANALYSTS PROGRAMMERS

To £7000

Sussex Coast

If you have had as little as 18 months' COBOL programming or systems experience then our client, who is a world leader in telecommunications, have a lot to offer. Financially, apart from very attractive salaries they are prepared to assist substantially with relocation costs should successful applicants wish to move to this desirable part of the Sussex coastline. A new and interesting challenge plus good promotional prospects are available for professional people who have had experience with commercial on-line systems, stock control or financial applications. No previous experience on IBM equipment is necessary as retraining will be given. For more details phone now.

AOC 1059

SYSTEMS PROGRAMMER

To £8000

City

Programmers with 2 years' COBOL experience on IBM equipment DOS/VS POWER/VS with CICS and PL1, or programmers with just 2 years' COBOL experience who would like to be trained on the above mentioned equipment, should take this excellent opportunity. Our clients who are a major finance company in the heart of the city, require a systems programmer to help implement and evaluate new software packages, also to maintain current systems. Season ticket, personal and house loans are made available to the successful applicant at discounted rates. Daily meal allowance and other large company benefits are included together with the very attractive salary makes an interesting proposition.

AOC 1038

SYSTEMS CONSULTANT

To £9000

Berkshire

If you are between the ages of 25 and 35 years with a good practical knowledge of data processing and computing techniques, this is an outstanding opportunity for career advancement. Applicants are required to have had several years experience of commercial systems on mini computers plus experience on the design and specification of user systems and a sound knowledge of hardware and software capability. The ability to communicate at all levels, enthusiasm and a sound business acumen is required. The purpose of this position is to verify that business systems have been specified in sufficient detail in order that an efficient computer system can be designed and implemented. For further details phone or send CV to our address quoting reference number.

AOC 1083

PROGRAMMERS — SYSTEMS ANALYSTS

To £5500

Liverpool

For analysts with 18 months' systems experience or to £4800 for programmers with a minimum of 2 years' COBOL programming. A rare chance to develop your career within a professional organisation who place data processing at the heart of the company's development plans. Our client is situated in modern premises in the centre of Liverpool with excellent communications by road or rail for outlying residential areas. To get the best available people this company are offering up to 100% relocation costs, good salaries for situation and generous bonus schemes. For more details of what our client has to offer make enquiries now quoting reference number.

AOC 1087

SYSTEMS ANALYST

To £6280

Dagenham

This company who are looking to redesign the majority of current systems to pave the way for a large upgrade in equipment from ICL 1900 or 2850 status. The company are offering attractive fringe benefits plus good opportunities for career advancement, and will welcome applicants with ability and enthusiasm. For more details phone now quoting reference number.

AOC 1017

SYSTEMS ANALYST

To £6750

Southampton

For a systems analyst with 3 years' systems experience to work for a small data processing bureau nicely situated in a desirable area on the south coast. The person will be required to act as a support adviser to the bureau customers backing up a sales person as well as organise a small team of programmers working on customer systems. The bureau have a Univac 9400 running most types of commercial package applications as well as designing and writing systems to suit individual customer requirements. More details available for this position.

AOC 1101

JUNIOR SYSTEMS ANALYST

To £6455

London

If you are a programmer with a minimum of 2 years' COBOL programming experience looking to broaden your computer career as a systems analyst then this is a very viable proposition. Applicants are required to have professional qualifications or a degree and be able to work with minimum supervision. For more details phone now or send written CV to our address quoting reference number.

AOC 1073

PROJECT LEADER

£8300

Slough

Our client is offering an excellent opportunity for a person with 5 years' systems experience plus a good working knowledge of IBM 370 hardware, and software. The successful applicant will be required to lead a team working on TP applications development with mini computer involvement. The company run a non-contributory pension scheme, provide subsidised lunches and operate flexitime working hours. Phone now for more details.

AOC 1111

SYSTEMS PROGRAMMER

To £5000

Middlesex

To qualify for this opportunity to move into systems programming, applicants must have a minimum of 2 years' PLAN programming experience to work on the company's ICL 2803 computer. If you have had the required amount of PLAN programming experience without the systems experience, this position is still very open to you, enquire now for more details, quoting reference number.

AOC 1120

Gryphon Computer Recruitment

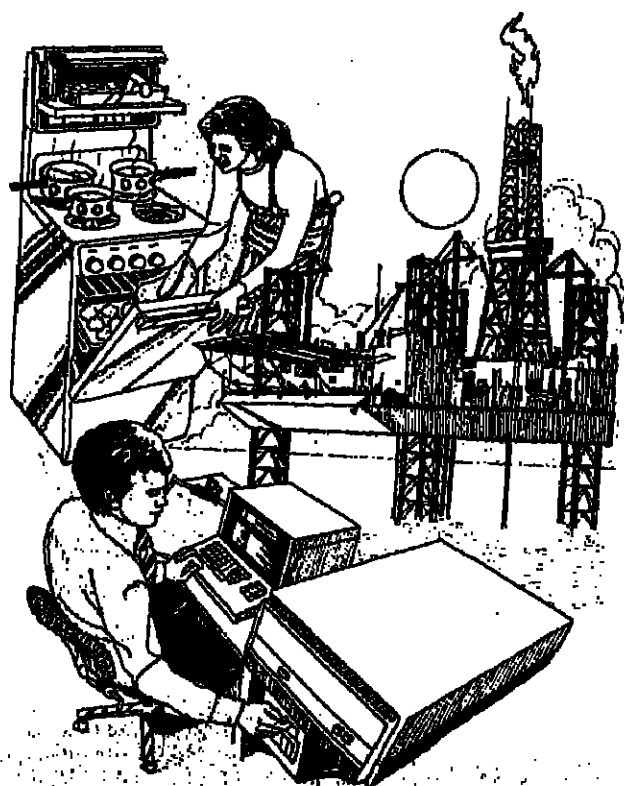
Essex House Cherrydown Basildon Essex

Contact Chris or Olivia on 0268 282155



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an area of great importance for ourselves and the consumer. It is into this crucial environment of our operations that we wish to recruit further computer professionals who will help to continually update and improve our systems by joining one of the most exciting projects in the country.

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based on mini-computers with multi-terminals

Application

We are setting up a computerised customer service system based on distributed mini-computer. Will provide on-line customer information through large numbers of terminals.

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Data General C330 mini-computers, large data storage, printers, several hundred VDUs. These mini-computers will eventually be linked into our extensive mainframe installation (currently 3 x ICL computers with 200 + remote terminals).

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We are seeking experienced Analysts, Programmers, Software + Operations Specialists (male and female) to work at one of two locations in West London - either our Development Centre in Acton or the Regional Computer Centre in Staines.

Training

We consider our training and development approach for computer staff to be among the best anywhere - ask any of our present staff.

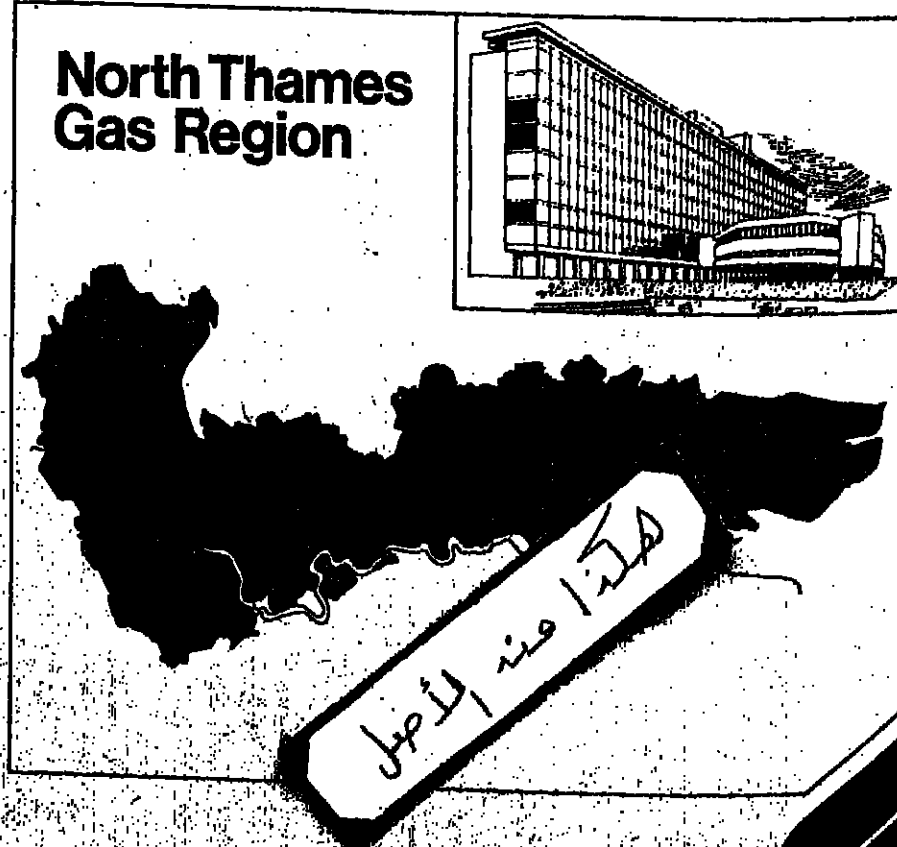
Prospects

According to your age and experience, the starting salary will be in the range £4500-£6000 which includes Metropolitan Weighting and pay policy supplements. We offer an excellent benefits package and long term career prospects are likely to be first rate.

Action

Finding out about our vacancies is just a telephone call away. Ring Staines 61666 and ask for Peter Woodhams, our Computer Manager in charge of the Staines installation. Or else write briefly (making an application form unnecessary at this stage), to Mike Hinds, North Thames Gas, North Thames House, London Road, Staines, Middlesex TW18 4AE, quoting reference H/9000.

North Thames Gas Region



NORTH THAMES GAS

Computer Operator

A Progressive Career in Bracknell

We operate a 2030A under CSE/2000 on a 2-shift system, using disc, tape and the output from a Redifon Seachek system.

Owing to the promotion of an Operator to Programmer, we are seeking someone with at least a year's relevant Honeywell operating experience to join our team providing a service to the Clark Eaton Group - including flat glass manufacturers, glazing contractors and glass processors.

The benefits are those normally associated with a progressive company including relocation assistance where appropriate.

Find out more about them and the salary provided by calling Vincent Murphy, Personnel Manager, on Bracknell (0344) 24733 or write to him at James Clark & Eaton Limited, PO Box 16, Southern Industrial Area, Bracknell, Berkshire RG12 4UU.



Anglian Water Authority

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To £6,000 (NJC Grade 6)
* Plus New Award from July 1978 *

Do you understand computers?
Can you analyse situations and make computers work for you?
Can you help us to analyse the effects and benefits of our Capital Development Programme?

The Anglian Water Authority invests £300M every 5 years on the water services in an area covering one fifth of England. The investment data base is currently held on a DEC PDP 10 but will shortly be transferred to the Authority's own Honeywell 68/10.

If you have a flair for problem solving and want to join a small professional team of Corporate Planners, contact us but only if you can pull your weight!

We are looking for one good Programmer with at least 3 years at the senior level who wants to broaden his/her scope. Previous experience of Corporate Planning is not necessary - but you should understand computers and how to make them do the work. Programming experience in FORTRAN is an advantage as would experience with Honeywell 66/10 on Dec PDP 10 machine, but we are prepared to train a person with the right attitude and proven ability.

If you are interested or want to know more about this opportunity, why not call Peter Cowle, Huntingdon (0480) 68181 Ext. 263 for information and an application form.

The closing date for applications is 22nd June, 1978 and should be sent to:
ANGLIAN WATER AUTHORITY
Diploma House, Grammar School Walk
Huntingdon, Cambs. PE18 6NL

CONTRACT RPO2 Holland
Immediate 3 months + vacancy for AUGUST/SEP
Must have IBM S/3 experience and at least 2 years RPO2.
PROJECT LEADER N. Harris
Good Analyst/Programmer to take time development of accounting system. Well motivated with 4 years + experience preferably with 1900/2300 and COBOL (GEORGE 2).
ANALYST/PROG Middle
General commercial experience on any small medium equipment preferably IBM and 3 years program systems. Installation is IBM 360/138.
Many more unadvertised positions!
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COMPUTECH 01-794 0202

Operators— Do you know George?

Bestobell Data Systems Limited, the central systems development and bureau service of the Bestobell Group, has the following vacancies as a result of company growth and internal promotion.

Senior Computer Operator around £4,000

Responsible for the day to day operation and supervision of the computer room, to ensure the efficient operation of the computer and 2 to 3 years operations experience required, including a reasonable spell in a supervisory role, covering disc and tape based systems and the relevant software. A knowledge of ICL 2903 or 1800 range operating under Executive 1/2 or George 2 is essential.

Computer Operator around £3,500

Someone with a similar background and experience to the Senior Operator but who does not need to have worked as a shift leader. A generous shift allowance is paid for a 2 shift system and a profit linked bonus scheme provides a supplement to your annual salary. You are invited to 4 weeks annual holiday and you would work in modern premises in Slough (conveniently near the M4).

For further information please telephone Gloria Eard, on Slough 33477 or write to her at Bestobell Data Systems Limited, Stoke House, Stoke Poges, Slough, Berkshire.

Bestobell
an international group

The City University
Business School

Courses in Systems Analysis 1978-79 Diploma in Systems Analysis

This is a full time one academic year course for data processing professionals who wish to broaden and improve their practical experience and theoretical knowledge of systems analysis. Candidates with suitable experience need not have a first degree. It may be possible for successful students to convert the Diploma to an MSc by means of a part time project and dissertation.

MSc in Business Systems Analysis and Design

This is a full time one academic year course for graduates for whom quality qualifications in data processing and systems analysis are essential. The course provides a comprehensive academic and professional grounding in systems analysis and design which combines the practical demands of work in the field with the theoretical knowledge required.

Further information on both these courses is available on request from:
Admissions Secretary (Business Systems)
Room No. 416
The City University Business School
23 Goswell Road, London EC1M 7BB
Tel: 01 253 4239
Ext 577 or 578
Application should be made as soon as possible but in any case not later than 30 June 1978.

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over 300 employees

Haringey's Comprehensive Housing Service is looking for a person who has computer systems development experience and who would now like to put this experience to use, in an effort to improve the housing service and information systems of the Housing Service for the benefit of the public.

An enthusiastic, self-motivated person is therefore required who can ensure that new or existing computer based systems are fully developed, maintained and used.

This is a new post which is based within the Housing Service to ensure that benefits derived are service oriented. The post holder will also be required to liaise closely with an existing Borough development team, whose main role is to develop the use of a pilot computer, on line, computer network, D.L.A. which uses an application developed with any Housing Service function which requires computer based systems, including data entry and should have the ability to liaise closely with other staff within the Housing Service and other borough computer development teams.

Application form and job description can be obtained from:

Chief Administrative Officer, 151/152 Finsbury Road, London, EC2A 3EJ.
Applications closeable by 21st June 1978.

UNIVERSITY OF ESSEX

COMPUTER OFFICER

In the department of
Computer Science
Computing Service

Applications are invited for the post of Computer Officer (Grade 1A) (salary scale £3,333-£6,627 p.a. under review). Applicants should have interests in non-sequential systems; interests in the establishment and development of computer networks would be an advantage. Previous experience in these areas, whilst desirable, is not essential; familiarity with the concepts of low-level programming would be useful.

The successful applicant will join an established Programming Group, which has responsibility for all aspects of software maintenance and development on the University's Service machine. This is a DEC system - 10/70, providing an extensive Timesharing and Batch service.

Applications (six copies) including a curriculum vitae and the names and addresses of two referees, should reach the Registrar (AG 7/1/CW) University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars may be obtained by July 7th, 1978.

THE OPEN UNIVERSITY

DATA PROCESSING DIVISION

OPERATIONS PLANNING

SALARY UP TO £6,000

The Open University founded in 1969, is now a major force in higher education. It has pioneered new forms of under-graduate and post-graduate education, and its future plans include developments requiring a similar level of innovation.

Data Processing has been fundamental to the growth of the University, and is scheduled to play a major part in its continuing development.

The Operations Planning Section plays a vital role in representing Data Centre interests in the early development of systems, in facilitating the hand-over of newly developed systems for live operation, and in supporting accepted systems on a continuing basis.

Applications are invited from persons with knowledge of Unibus 1100 and who have some experience of programming and computer system design. Career development prospects are good and in addition we offer good holiday provisions, excellent sports and social facilities, and full location with houses available to rent or to purchase at reasonable prices. (Personal expenses are payable).

Applications forms and further particulars are available, by post, request please, from: The Recruitment Office (OP2), The Open University, P.O. Box 78, Walton Hall, Milton Keynes, MK7 8AL or by telephone from: Milton Keynes 82404 or 82555 (44 hours answering service).

Closing date for applications 29th June 1978.

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in Greater London (London and Wiltshire)

THE SALES BIT

Objections and rebuttals PART II

In last week's column we were discussing some of the disciplines which salesmen might adopt, related to the handling of questions within the sales negotiation. The main points were: 1 - Answer all objections and questions truthfully but qualify their relevance; 2 - Don't leave questions unanswered; 3 - Always listen carefully and never interrupt.

Let's consider a couple of more basic rules:

The salesman should never argue with the buyer or tell him he is wrong. Whatever the circumstances, an unempathetic atmosphere is almost certain to result. This is true whether the buyer is actually wrong or not. Full-frontal contradictions seldom work to a salesman's advantage.

Having said that, it is often important for a salesman to make his point without upsetting the applicant. Here are some useful prefixes which can take away the initial impact of a statement which might be at odds with the buyer's own opinion.

I agree but...
I'm surprised, my impression is...
I didn't realise that...
I always thought that...
I agree that is usually the case, but in this particular instance...
I always used to think that, but recently I've discovered...
Then the salesman makes his point. It just makes the blow a little softer.

Sometimes an objection

needs to be qualified, so the salesman may know if it is real or just a diversion.

This is where the "but if" test is useful.

Objection:—We don't need computers. Our manual system gives us all the information we need.

Rebuttal:—I am sure your present system fulfils its function admirably. But if I could prove by way of existing users that there are many substantial financial and management control benefits which can be brought about by our special computing approach to your type of problem, it would be an asset to your company, wouldn't it?

Objection:—Your system is too expensive.

Rebuttal:—It is certainly not cheap, one tends to get what one pays for. But if I can prove that our cost/performance is at least equal to that of our competitors, will you give us the business?

You will notice an effective rebuttal converts an objection into a "trial-close", or at least attempts to gain commitment from the buyer. That is a very important point to remember, and one of the best times in a negotiation to ask for the order is on successfully overcoming an objection.

Objection:—I'd like to, but I don't feel I know you well enough.

Rebuttal:—I know we've only just met, but if I tell you the story of my life, then will you?

TRADER

How computing will affect management

From Page 23

development, the lack of precise definition of jobs and tasks can produce personal ambiguity, which many people find unacceptable.

With the insight this provides the more participative views of Anshen would seem to be favoured. If we can be sure of anything in the future it is that the rate of change we will experience will be more rapid than ever before. A move towards a more Theory Y style will be necessary to enable us to cope. Our creaking bureaucracies must change themselves. It is to be expected, therefore, that the data processing profession should be strongly Theory Y in orientation.

This, however, does not seem to be the case. If anything the definition of tasks and jobs is more precise than in most areas of management. Notwithstanding the highly desirable improvement in intelligibility of coding gained, the highly authoritarian management controls which seem to be a major appeal of structured programming are a matter for concern.

The results of a study of

the management style of data processing managers presented at an IFIP conference in 1974 by Enid Mumford and Bo Hedberg gave a further cause for concern. Comparing British and Swedish managers, the British managers were found to be more Theory X in style compared with their Swedish counterparts. This reflects in no way on their technical competence. But it may indicate a relative lack of ability to put sound innovation into practice.

Isn't that something we've heard before?

Puzzle answer

The smallest set is 44-117-240, giving the perfect squares 125, 244 and 207. The next largest set is 86-234-480, and the next 85-132-720.

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You already know the Gemini name as the largest software group in Europe. Now we're the name to come to if you're looking for outstanding job opportunities — anywhere in the industry at any level.

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You'll be advised of jobs that are not advertised — giving you that invaluable 'first crack' at the job. Where we think fit, we'll also recommend career opportunities that may not have occurred to you before. Interviews can be arranged anywhere in the UK or Europe.

How do you contact us?

We'll be appearing regularly in this position (inside back page) from now on. Just look for the advertisement with the 'G' border.

So now you know where to find the better jobs... on this page... at Gemini Recruitment.

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London £9000

Urgent

London-based client requires experienced Project Manager to supervise a team of 20 programmers and analysts for a major on-line banking project. You must have IBM design experience or data base and tele-processing projects.

Salary up to £9000 p.a. plus fringe benefits.

Contact: Ian Bacon.

GEMINI Recruitment

Ascii through the Logic Gate

An epic in 32K words, by Richard Forsyth
Block 2 (A Mental Block)

Hex has been taken prisoner at Sprocket's Hole and forced at gunpoint to switch off Ascii. Now he awaits his fate with resignation.

Sheriff Sprocket accepted the pipe from his partner and took a couple of deep breaths. A look of satisfaction settled on his features. Hex averted his eyes and sat with his head cast down, his mind so empty of ideas for escape it might have been running the null job. He gazed at the floorboards in silence, losing all track of time.

Suddenly he was aware of a monotonous rhythmic drone. He raised his eyes to look at the androids. There was Sprocket, slumped deep in the rocking chair with the rifle still cradled in his arms, fast asleep and snoring like an old walrus. Bill Bootstrap had actually slid off the bench and knelt against the table, his chin propped up by it, with a beatific smile on his face. The clay pipe had fallen from his lips and splintered into pieces on the floor. Beside it lay his shotgun.

At that moment, as Hex gaped in astonishment at this golden opportunity for deliverance, the door creaked gently open and Cleo crept into the room. In spite of his amazement, Hex was the first to speak.

"You risked your life," he said.

"So did you when you dragged me clear of the mob on the reservation," she answered, "and by coming here."

"How did you do it?"

"I knew when I overheard the Network news that they would be expecting you, so I changed the hash coding algorithm in Bootstrap's 4-dimensional dope vector. He got something stronger than he bargained for. Now he's gone into a hibernation state." She broke off as Davy Sprocket's body was racked by a particularly convulsive snore. "Better get packing," she urged Hex, "we can't sit about talking all night."

"But it will take hours to power up Ascii safely."

"By which time Kludge and his inquisitors will be here. They're due early in the morning."



"Yes, but if I just switch the juice on again he might have a head crash, or worse."

"If you don't want to risk it we'll have to carry him."

Hex looked down at Ascii's prone body, weighing the best part of a hundred kilograms, and scratched his chin.

"I've had an idea," he said after a moment's thought. "Is there any wire in this godforsaken hole?"

"Well, there's a 25-pin cable leading from the teletype."

"Fine! This will only take a few minutes."

Hex went over to Bill Bootstrap and gingerly extracted from his limp hand the leather pouch containing all his worldly possessions which the android had confiscated. In it were the blueprint for an anti-data "black noise" generator and the 40-pin microprocessor that Null had bequeathed to him. At the bottom was his soldering iron. He took it out and moved over to the archaic teletype.

Cleo watched in puzzlement and some impatience as he

ripped out the data lead and brought it over to Ascii. "What's the idea?" she inquired.

"It's safe enough to turn on his motors," explained Hex, "but I'm worried about his logic circuits. I didn't have time to go through the proper shut-down procedures, you see, and his memory may have been scrambled. So I'm going to drive him by remote control. Then when we have time I can check all his circuits and restart him in the normal way."

"You mean you're going to rig him up as a peripheral unit?" she asked.

"Exactly. I wonder if you could give me a hand," Hex said holding out the connector. "If you look on the back of my head you'll see a socket marked 'Auxiliary I/O port'. Plug it in there."

Cleo plugged it in and Hex finished soldering the connection on Ascii. "Right," he said, "now before we try it out, you collect their weapons." Cleo carefully pried the rifle from under Sprocket's forearm, then picked up Bootstrap's shotgun.

"Okay, stand clear," advised Hex. "Here we go!"

Cleo edged towards the door. Hex touched the live wire to Ascii's batteries. For a fraction of a second nothing happened. Then a red warning indicator flashed on Ascii's nose and the hut was filled with the screech of a siren.

"Motherboard!" swore Hex, throwing open the lid between Ascii's ears. His hand dived in and flicked a switch. There was peace once more. "I forgot to switch off the audio alarm," he apologised to Cleo.

"So I noticed," she replied.

Throughout it all Sprocket's regular snoring had continued uninterrupted. "It seemed louder than it was," added Hex in self-justification. "Anyway he's ready to roll now. Could you please open the door for us?"

Cleo pulled it open and made her exit into the night. Then Ascii jerked into motion under Hex's guidance and the pair of them, linked by two yards of wire, lurched drunkenly towards the door. Mercifully, they missed all the obstacles in their path.

When they rejoined Cleo outside Hex turned to shut the door behind them, then paused as if he had forgotten something.

"Wait a minute," he said, and pulled out the data cord again. Before Cleo could voice her objections he had re-entered the hut and strode over to the now-defunct terminal in the corner. He switched it off-line and typed one word.

BYE.

Would Cleo be better off without her "rescuer"? Read next week's issue for her own opinions on the subject.

© 1978, Richard Forsyth, Rair Timeshare.

SENIOR SYSTEMS ANALYST

West End £6000 to £7300

An opportunity has arisen for an experienced and articulate Systems Analyst to progress into a more demanding and responsible position, leading and co-ordinating the work of a team of three other analysts.

The installation comprises an ICL 1903 machine running under GEORGE II, and an extensive Real Time system utilising DRIVER and COMMS MANAGER. Experience in any of these areas would be highly desirable, as would a programming background in either COBOL or PLAN.

You should have at least 4 years total DP experience, 2 years of which should be in Systems Analysis, and during this time you ought to have installed 2 major systems. The work will cover many different projects and will involve a wide area of systems and applications.

Reference JC 23/1

COBOL PROGRAMMERS

City £4000-£5000 plus Mortgage

A major financial organisation with an expanding ICL 2900 system is seeking several programmers for their city-based installation.

These positions will be ideal for people with at least one year's commercial experience gained preferably on ICL equipment.

The company offers a high starting salary and an excellent benefits package including Season Ticket Loans, Flextime and a Mortgage Subsidy Scheme.

Reference JC 23/2

PL1 PROGRAMMERS

City £5000 plus mortgage

A major financial organisation needs programmers with 2 years good commercial experience to join their expanding DP department in the City.

They currently operate a twin IBM 370/138 system, running under DOS/VS, and have a comprehensive communications network; so any knowledge of CICS would also be an advantage.

In addition to a competitive starting salary and excellent career prospects, the company offers Interest-free Season Ticket Loans, free Life Insurance and Annual Bonus scheme, and a 3% Mortgage.

Reference JC 23/6

SYSTEMS PROGRAMMER

City Negotiable

A large and highly respected financial institution is seeking a capable and imaginative OS/VS Systems Programmer to work in their City based installation. They are using two IBM machines — a 370/148 and a 370/158, running under OS/VS1 with VM/CMS.

The ideal candidate would have a general programming background preferably in ASSEMBLER or PL1, with a minimum of around 18 months in OS or OS/VS Systems Programming. Knowledge of IBM 370 Hardware and Software fundamentals is desirable as is any experience of performance measurement and estimation techniques.

Salary will be totally dependant upon ability and experience, and will not prove a limiting factor for the right person.

Reference JC 23/4

FORTRAN PROGRAMMERS

London £4000-£5000

A major engineering company located just south of the river near London Bridge Station requires an experienced Fortran programmer. The suitable applicant should have a degree in Applied Mathematics or Engineering and at least two years experience in Fortran, preferably on IBM equipment.

Liaising with users and other programmers you would gain experience in Scientific Applications, Stressing, Thermo Dynamics etc and could expect good career progression and an above average salary.

Reference PG 23/3

COMMUNICATIONS PROGRAMMERS

Hartfordshire & North Kent £4000-£8000

A market leader in computer based communications equipment have a number of opportunities for engineers and programmers in the following areas:

Real Time
Software Engineering
Micro Processors

Experience in any of the above, possibly coupled with a degree, would lead to an excellent salary together with a generous benefit package which includes Flextime, 24 days Holiday, L.V.s, Generous relocation expenses and Subsidised Company products.

Reference PG 23/6

The quiet frequency converter

QUIETNESS of operation is one of the main features of a frequency converter now available to users of big computers like the IBM 370/158, 3033, Andrah 470 and Univac 1100/80. Called the Super Silent Block, it is built by Anton Piller (UK) Ltd and converts power from mains frequency to 441 Hz.

The Super Silent Block comes with an asynchronous motor and an AC generator mounted on the same shaft. This is housed, together with the associated control equipment, in a sound proof cabinet which reduces the noise level to 55 decibels (dB) measured at one metre. Anton Piller points out that this meets the NR-60 standard.

The Super Silent Block is supplied as a 75 kilowatt unit, but variations are available for different voltages and frequency requirements.

The input voltage is 380 volts or 415 volts at 50 Hz and 480 volts at 60 Hz, and the output is 441 Hz and 1100 rpm at full load are 2.54 and 3.57.

Using a paralleling unit also supplied by Anton Piller, up to eight converters can operate in parallel for greater capacity. Anton Piller added that users must be one more power than the number of computers to be converted.

Anton Piller (UK) Ltd, 100, The Quadrant, London EC4A 3DF. Tel: 071 481 1177.

Cleaning system

A magnetic disc cartridge cleaner is one of the products being sold by a new marketing company, International Data Automation Ltd, of Virginia Water, Surrey, which is offering European sales and support facilities to companies manufacturing novel computer products.

The cartridge cleaner is the Model 300 from US firm, Innovative Computer Products Corp. It is available in two versions, one for handling IBM 6440 type top loading cartridges and the other for 2315 type front loading cartridges. It can clean both sides of a cartridge in three minutes.

International Data Automation Ltd (CWI), 33 Abbots Drive, Virginia Water, GU25 4AH. Tel: Weymouth (09904) 2538.

Bigger busloads

USERS of Digital Equipment PDP-11 computers can now have 19 additional busloads and 50 additional feet of bus length if they use Re-bus. This comes in the form of a dual width board which is installed in the same pair of connectors as the Umbus extension cable.

Re-bus provides a bus repeating function without requiring the space of an entire system unit. No software changes are needed and the bus cycle time is unaffected for devices on the same side as the Re-bus. For devices on the outboard side it is increased by a maximum of 250 nanoseconds.

Re-bus is available for PDP-11/04, 11/05, 11/10, 11/34, 11/35, 11/40, 11/45 and 11/70 machines and costs £495 from Sintrom Electronics Ltd.

Sintrom Electronics Ltd (CWI), 14 Arkwright Road, Reading, RG2 0LS. Tel: 0734 88464.

9,600 bps modem

THE Interdriver LD88A modem from Modular Technology gives telecommunication users a transmission speed of 9,600 bits per second over distances of up to 10 kilometres and 110 bps for up to 20 km.

The company says this performance makes the Interdriver LD88A a most suitable for in-house communications of short distances.

The modem, developed in UK, is powered from the mains with a standard CCITT interface on a 25-pin "D" type socket for full or half duplex asynchronous and synchronous transmission over DC noise transmission lines.

Modular Technology (CWI), PO Box 117, Watford, WD 1 4PD. Tel: 01 421 0081.

System builder's desk

PEOPLE building small computers need a desk designed for a variety of items could be installed in a desk designed by the Birmingham firm, Widney Davies. The instrument cabinet houses standard 19-inch racks and is 32 inches deep and 14 inches high. The desk top is 48 inches long and 24 inches wide. It can be used as a desk or a table. The desk is made of wood and is available in a variety of finishes. The desk is made in Birmingham, England. Tel: 021 430 344.

Why vacant memory slots aren't needed

VACANT memory slots are not needed for the 501 range of add-on memories offered to Digital Equipment PDP-11 users by Sonson Ltd. Instead, the 501 memory can operate a small peripheral control slot of quad or hex height. It is compatible with the DEC PDP-11 memory management unit and can be supplied with a capacity of 4K, 8K, 12K and 16K words of 18-bits. It can easily be upgraded from 4K to 16K, according to Sonson. The 501 memories use existing Unibus power lines and come with on-board control and refresh circuitry. They can be used with existing core memory.

The components used with 501 memories are 4K dynamic MOS RAM chips with an average access time of 570 nanoseconds. Typical cycle times are 505 nanosecond refresh, 660 nanosecond write and 760 nanosecond read. With a +5V DC supply requirement varies between 618 and 625 milliamperes while operating and between five and 19 milliamperes while quiescent. With +5V DC the figures are 668 to 715 milliamperes quiescent and 640 to 685 milliamperes in operation.

Sonson Ltd (CWI), Denton Drive, Northwich, CW9 7LJ. Tel: Northwich (0949) 44321.

Automatic test system

AN AUTOMATIC test system that signals when the operator has moved off the connect track when tracing a fault has been introduced by DenRad. Called the 2220 Q Bug Hound, it is a portable unit with a current tracing probe that has two light emitting diodes at the tip.

When the probe moves off the connect track the LEDs go on and an audible tone is heard. When the probe moves off to the right the other LED lights up and a different tone is heard. Both LEDs and tones will be on when the probe is directly over the track.

DenRad said that this enables the probe to stay on the

right track even when several tracks are close together and it greatly simplifies the process of physically locating a short.

DenRad Ltd (CWI), Bourne End, Buckinghamshire, Tel: Bourne End (0494) 28611.

AN air cleaner suitable for use in computer rooms is now available from RAB Products. Called the Merlin Mark 2, it measures 17 x 11 x 12 inches, weighs nine kilograms and can be mounted on a wall or on a desk. It can be used to clean the air in a room or to clean the air in a computer room. RAB Products (CWI), 2 Blenheim Road, Ilam, Surrey, Tel: 01 948 1021.

Data recorder

UP to 55,000 characters can be recorded on a magnetic tape cassette using the Porta 200 hand held data recorder from the US firm, Techtran Industries.

The Porta 200 comes with a 16-key pad, a display and a cassette drive. Data is displayed for verification as it is entered and recorded.

The Porta 200 is battery powered and can operate for about four days between charges, according to Techtran.

It weighs three pounds and costs \$825 (\$495), including a battery and charger. Applications and a phosphor coated tape are included. The Porta 200 by Techtran includes warehousing and retailing.

Techtran Industries Inc (CWI), 200 Commerce Drive, Rochester, New York, 14623, USA. Tel: 344 9540.

Vacuum tubes

DIGITAL instruments are seen as one application area for the iron range of vacuum phosphor coated tubes from TTT Component Services. They can display up to 40 digits and alpha-numeric characters.

TTT explains that an Iron tube consists of three electrodes: namely a cathode, a grid and a phosphor coated anode. The latter is divided into seven or more independent segments one for each character. When activated they glow with a blue-green colour. Between two and 40 digits can be displayed at a time.

Other applications areas for the Iron include calculators, cash registers and weighing scales.

TTT Component Services (CWI), West Road, Harlow, Essex. Tel: 0279 35331.

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